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DIESEL RAILWAY TRACTION SUPPLEMENT

The May issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1*s.*

DISPATCH OF "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders No. 1190 *of* 1940, *and No.* 359 *of* 1941

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:—
Mondays to Fridays - 9.30 a.m. till 5.0 p.m.
The office is closed on Saturdays

C.M.E., L.N.E.R.

THE death of Sir Nigel Gresley left vacant one of the most important posts in the British railway world, that of Chief Mechanical Engineer of the London & North Eastern Railway. Its late occupant, by his achievements, imparted to it a status which added to the already prominent nature of the office and leaves for his successor a great tradition to be upheld. The responsibilities of a railway Chief Mechanical Engineer are at all times considerable and the difficulties to be faced in present circumstances have the effect of magnifying these responsibilities considerably. Great numbers of engines and vehicles have to be maintained in a safe and efficient condition, and necessary repairs must be carried out, in the face of increasing obstacles such as depletion of workshop staffs and falling off in the supply of materials, added to which are numerous other though smaller problems concerned with running adjustments and repairs, while the demand for engine power to meet national needs tends to increase. New construction, both of locomotives and rolling stock, is hedged about with similar difficulties in an aggravated form, making it all the more imperative that existing stock shall be kept up to traffic requirements, whilst the upkeep of shop equipment necessary for the completion of the work presents a further and very real problem. In our view, the directors of the London & North Eastern Railway have taken two very wise steps in dealing with the vacancy in their Chief Mechanical Engineer's Department, one in separating the mechanical and electrical engineering sections, and the other in appointing Mr. E. Thompson to the post of Chief Mechanical Engineer and Mr. H. W. H. Richards to that of Chief Electrical Engineer of the railway; brief descriptions of their careers will be found on page 504 of this issue. Mr. Thompson thus takes up his arduous task without the added complication of supervising electrical engineering, and Mr. Richards assumes absolute control of a separate department, on the lines of the Southern Railway organisation, for which he is responsible direct to the Chief General Manager.

* * * *

The Morse Code used in England not Morse's Code

A reader once applied to us to settle a signalling problem which had arisen from his having purchased for his son a very attractive "make your own Morse telegraph" toy set, which had been duly put together and proved to transmit the dots and dashes to the entire satisfaction of the happy recipient. The code engraved on the base of his tapper key, however, provided to refresh the memory of budding telegraphists, although professing to be the Morse code, was not that with which he was acquainted through his scouting activities; it contained differences which puzzled him exceedingly. We realised what these must be and enquired where the toy came from. It had been obtained at an electrical shop dealing in second hand items and—so it proved—was part of an odd consignment of goods purchased from an American supplier. The code marked on it, we pointed out, was the real and original Morse code, drawn up by Morse himself, and used since then in North America, whereas that which our scout had learnt was a later one, now long familiar in Europe and adopted for international services in 1865. We publish at page 495 a brief explanation of the difference.

* * * *

South African Railways & Harbours in 1939-40

The report of the Controller & Auditor-General states that the audited figures for the year ended March 31, 1940, show a gross surplus of £1,681,360, less the deficit at March 31, 1939, of £117,897, leaving a net surplus of £1,563,463. Operating expenses increased by £678,271 or 2·79 per cent., and revenue increased by £1,197,520 or 3·67 per cent. The operating ratio was 74·01 per cent. as compared with 74·65 per cent. the previous year. The profit on road motor services was £12,525 compared with a loss of £28,470 in the previous year. Out of a total of 123 area services, 67 showed a profit aggregating £56,494, and 56 areas showed a loss of £43,969. The road mileage operated at March 31, 1940, was 16,319 compared with 15,119 a year earlier. Grain elevato-

working showed a profit of £74,151 compared with a loss of £35,757 in 1938-39. The aggregate loss on working since the opening of the elevators in 1924-25 was £388,464. The net profit on publicity, bookstalls, advertising and automatic machines was £24,057, an increase of £442. The profit on catering and bedding services was £10,490 compared with a loss of £8,377 for the previous year. Airways showed a net loss of £249,662 compared with £325,544 in 1938-39.

* * * *

Overseas Railway Traffics

The four larger Argentine railway systems have improved their receipts in the 41st and 42nd weeks of the financial year, the Central Argentine leading with an increase of 606,850 pesos, followed by the Buenos Ayres & Pacific gain of 431,000 pesos, and the Buenos Ayres Great Southern advanc of 132,000 pesos. Against the Entre Rios increase of 25,200 pesos in the 42nd week has to be set the decrease of 29,700 pesos in the previous week. On the Central Uruguay in the 41st and 42nd weeks there has been a welcome improvement of $61,417 in currency receipts, reducing the aggregate decrease to $74,444. Sterling receipts for the 42 weeks show an advance of £51,045.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
Buenos Ayres & Pacific* ...	42nd	1,710	+ 155	59,579	+ 785
Buenos Ayres Great Southern*	42nd	2,289	+ 76	92,831	— 7,607
Buenos Ayres Western* ...	42nd	918	— 16	32,092	— 1,355
Central Argentine*	42nd	2,061	+ 401	66,696	— 7,946
		£	£	£	£
Canadian Pacific	16th	724,800	+ 205,200	11,295,800	+ 2,553,400
Bombay, Baroda & Central India	3rd	315,000	+ 16,575	665,325	+ 68,475

* Traffic returns in thousands of pesos.

San Paulo traffics for the 16 weeks of the current year show an increase of £9,677, and the Leopoldina receipts for the same period are £31,439 higher.

* * * *

British Guiana Transport

The Transport and Harbours Department of British Guiana controls from its headquarters at Georgetown, Demerara, the railway and road transport, and the steamer and harbour services of the Colony. The railway system consists of the East Coast Railway of 60½ miles on the 4 ft. 8½ in. gauge, and the West Coast Railway of 18½ miles on the 3 ft. 6 in. gauge. Net receipts of the East Coast line rose in the year 1939, to $17,378 ($ = 4s. 2d.), from $12,453 in 1938, but the deficit on working on the West Coast line was increased slightly, from $11,144 to $11, 225. Figures for the whole of the railway system are compared as follow :—

	1938	1939
Passengers	1,462,891	1,509,230
Goods, tons	110,977	108,052
Train-miles	240,622	245,596
Operating ratio, per cent.	99·62	98·35
	$	$
Passenger receipts	157,042	165,203
Goods receipts	145,060	156,065
Gross receipts	352,864	371,364
Working expenditure	351,555	365,240
Net receipts	1,309	6,124

The gross income of the Department for all the undertakings, in 1939, amounted to $883,141, and the expenditure to $745,454, leaving net receipts of $137,687, as compared with $121,426 in 1938. Deduct interest and sinking fund, the result is again a deficit, of $51,980. Road services showed a loss of $2,395 and steamer services a loss of $21,625, but from harbours there was a profit of $155,987.

* * * *

Cleaning Communication Circuits

Under certain climatic conditions the resistance of insulators, pins, and cross arms of communication wires can be very much lowered. Particularly is this so in areas where a good deal of dust and soot can accumulate and then be subjected to wet fogs. As long as the dirt remains dry no great trouble is experienced, and even heavy rainfalls keep the insulators clean, but if there are long periods without heavy rain artificial washing may be necessary to prevent the lowering of the electrical resistance and the ensuing increased current leakage and interference. On one section of the Southern Pacific Railroad along the shore of San Francisco bay, washing with water at high pressure has had to be adopted to keep the insulators clean at a reasonable expense. Previous methods were manual cleaning *in situ* and replacing dirty insulators with clean ones, the dirty units being cleaned at a central depot. With the present method a 9,000-gal. tank car is pulled by a shunting locomotive, and its high-pressure pump is operated by steam from the locomotive. A jet of water is sprayed up to the cross arms of each pole—there are about 70 wires along this section—and about 10 min. is required at each pole. About four miles can be dealt with in a day. Generally the poles are not more than 50 ft. from the centre of the track, but some are 300 ft. away and for these extra lengths of hose are used. One washing maintains the efficiency of the insulators from mid-July through the fog season until the autumn.

* * * *

Rock Island Replaces its Ramp A.T.C.

Ramp A.T.C. systems have been relatively little used in the U.S.A. The first main line to put one—the Miller—into regular service appears to have been the Chicago & Eastern Illinois, which equipped 24 miles in 1913 and eventually had about 140 route-miles working. A somewhat similar scheme, later known as the Regan and demonstrated in England on the G.E.R. at Fairlop in September, 1920, was put to work on 25 miles of the Chicago, Rock Island & Pacific in March of that year. This had speed control, not used on the C. & E.I.R. When the equipment of an entire engine division became obligatory in 1923 the Rock Island extended its ramp apparatus to cover about 165 route-miles. On other American main lines, however, preference was given to non-contact systems, as being, among other things, better suited to winter conditions. We cannot say if the C. & E. I. apparatus is still in service, but the Rock Island, after more than one unsuccessful attempt to get alterations sanctioned by the Interstate Commerce Commission, has now been allowed to change over to continuous cab signalling and abandon the ramp equipment. A C.T.C. system is also to be put in to control about half the double-line route concerned.

* * * *

The Value of the Set Train

To the traveller accustomed to regular use of the same trains, set formations, in which the coaches are arranged in a more or less permanent order, doubtless offer some advantage. This is particularly so where there are portions for different destinations. Of certain longer distance residential trains and other main-line semi-fast ones the complaint is sometimes made that they are " never made up in the same order two days running," and that passengers may have to walk the whole length of the platform to find the class and style of accommodation they require. Some passengers are notoriously fussy in this respect; they would not only have all the firsts occupying the middle of the train, but are even heard to suggest that there should be no mixing of the smoking and non-smoking compartments, each to be grouped together and forming a solid bloc. We suggest that one day spent in a carriage shed or wherever the trains are assembled would speedily prove the fallacy of the proposal and, although it is true some Continental railways display boards on the platforms showing what the formation of the train will be, this is done only in the case of long-distance through expresses and not as a general rule.

* * * *

Care of Sleepers

The railways of the United States in normal times consume nearly a fifth of the annual timber cut. A paper presented to the American Wood-Preservers' Association at Louisville on February 5 by Mr. A. N. Williams, President of the Lehigh Valley Railroad, describes the methods adopted by his line to obtain maximum life from sleepers. The standard rail is of 136-lb section, 7⅞-in. high, with a 6½-in. base and a moment of inertia of 98·5. A 9 × 15 in. soleplate is used on sleepers 9 in. wide. Pre-adzing and pre-boring of sleepers have been standard practice on the Lehigh Valley since 1929, and have

markedly prolonged the life of the sleepers. Special attention is given to inspection, and the company has its own staff for this purpose who not only inspect the timber but see that it is loaded and shipped to the seasoning yard as soon as possible after it is cut, thus avoiding controversy as to whether the timber was in good condition when inspected or not. After seasoning, all sleepers are treated by the Lowry or empty cell process, which secures an average attention of 8 lb. of oil per cu. ft. of timber. Coal tar is at present used for the purpose. Great care is taken in track maintenance to secure adequate ballast and drainage so that vertical movement of both sleepers and rails is reduced to a minimum. As indicating the successful results which have been achieved, Mr. Williams mentions that for the period from 1918 to 1929 annual sleeper renewals averaged 107 a mile, whereas from 1930 to 1939, inclusive, the number was only 49. In the past 20 years man-hours per mile of track for current repairs were reduced by over 80 per cent.; in 1939 they numbered only 648 as compared with 2,960 in a test period covering the years 1915 to 1917.

* * * *

Weight in Working Order

When a locomotive has been finally weighed and the figures showing the total and distributed weights have been established, as apart from the stage where they are computed, it sometimes happens that, in the constitution of the total load on the track, the tender ranks almost as high as the engine itself. In this country locomotives which turn the scale at over 100 tons without the tender are somewhat rare, and the heaviest example is the " Princess Coronation " class streamlined Pacific on the L.M.S.R. which, in working order, weighs slightly over 108 tons. Here, however, the tender, when fully loaded with 10 tons of coal and 4,000 gal. of water, is only slightly over 50 per cent. of the weight of the engine. Other examples can be cited of fairly modern types wherein the ratio is much higher, as, for instance, the Class " 4F " engines on the same railway, where the figures are 48 tons 7 cwt. for the engine and 41 tons 4 cwt. for the tender, a difference of approximately 7 tons. The " J39 " 0-6-0s of the L.N.E.R.—quite a modern class—run matters even closer, the engine weighing 57 tons 17 cwt. and the tender 52 tons 10 cwt. Further instances could be given where the non-paying load represented by the tender approximates to the weight of the engine itself, for tenders of fairly high capacity are required for locomotives of the lighter but still powerful classes, and every increase in the size and weight of the locomotive tends to increase the ratio of tender weight to that of the engine.

* * * *

British Standards in Wartime

Some months before the war began, the British Standards Institution offered its services to the Government, an offer which was cordially received and has since resulted in close co-operation between the institution and the Production Executive. The Materials Committee of that executive has set up a number of economy committees, to which the institution, in collaboration with the branches of British industry concerned, has made recommendations for new standards already resulting in the saving of thousands of tons of steel in the manufacture of canned food containers. Further economies on a similar annual scale are estimated from a new War Emergency Specification for the production of nuts and bolts with smaller heads. It is not only in the industrial and engineering field that the institution draws the line, so to speak, but also in matters less easily accommodated within precise limits, such as where the boundaries lie between babies', children's, and adults' clothing for the purpose of imposing purchase tax. These boundaries have now been defined by the institution to the satisfaction of the Government. Meanwhile the institution has a committee in Argentina working in close collaboration with the Argentine national standards organisation, with considerable benefit and assistance to the British export trade, as has been recognised by the financial support for pursuance of its work given to the institution by industry in this country.

Canadian Pacific Railway Company

THE report of this company for the year 1940, which has just been issued, shows a continuation of the conservative financial policy of the directors, who have taken the opportunity afforded by the great increase in earnings to appropriate $10,000,000 out of profits towards writing down the investments in the " Soo " line. At the same time the 4 per cent. preference stock, on which nothing was paid for 1939, has received its full dividend for 1940, and the profit and loss balance of $144,045,295 contrasts with one of $141,353,503 at the end of 1939. Gross earnings in 1940 increased by $19,684,198, or 13 per cent., in comparison with 1939. Freight earnings advanced by $15,493,585, or 12·9 per cent., and were greater than those of any year since 1929. Receipts from grain and grain products showed a decrease of 13·1 per cent. At the end of the year only 30 per cent. of the exceptionally large wheat crop of the Prairie Provinces had been moved, because much of the normal export market was closed as a result of the war. Apart from grain, freight earnings increased by 22·2 per cent., gains being shown in every important class of commodity except fruits and vegetables and anthracite coal. Passenger earnings improved by $2,784,687, or 17·8 per cent. Excluding taxes, the increase in working expenses was $9,163,205, or 46·55 per cent. of the increase in gross earnings, and the operating ratio (excluding taxes) of 74·61 per cent. was the lowest of any year since 1917, with the exception of 1926 when it was 74·41 per cent. Some financial results are compared below:—

	1939 $	1940 $
Freight earnings	120,338,068	135,831,653
Passenger earnings	15,617,061	18,401,748
Gross earnings	151,280,700	170,964,897
Working expenses (including taxes)	122,756,880	135,325,459
Net earnings	28,523,820	35,639,438
Other income	6,764,851	10,692,163
Total income	35,288,671	46,331,601

Under " other income " there was a net increase in dividends of $77,822, and the operation of ocean and coastal steamships resulted in a net profit of $3,075,910, as compared with a net loss in 1939 of $71,274. Deductions from total income included $25,380,715 for fixed charges, $805,830 for interest on " Soo " bonds, and $5,042,782 for preference dividend, leaving a balance transferred to profit and loss account of $15,102,274, compared with $9,782,148 in 1939.

* * * *

Diesel Power for Shunting

THE manifest advantages of diesel motive power for intensive shunting have been given a most deserved impetus by the paper read by Mr. C. E. Fairburn, Deputy Chief Mechanical Engineer and Electrical Engineer, L.M.S.R., in his paper " Diesel Shunting Locomotives " read before the Institution of Locomotive Engineers on April 30. Perhaps the principal value of the paper was the indication it gave of just what diesel locomotives of robust construction can, and do, stand up to in arduous breaking-up and marshalling service in hump and flat yards. The extraordinary magnitude and frequency of the load variation throughout 24-hr. service for six days a week would provide a searching test for any type of machinery, and looking at the results obtained on the L.M.S.R. there should be an end to the parrot-cry that the diesel is a delicate piece of mechanism. From what is included in the paper, and from what we ourselves have observed during many hours on the footplate, the modern diesel as used on Britain's largest railway is pre-eminently the motive power for successful shunting. Too often in this country shunting has been performed by steam engines so ancient that only the spaces between the wheels were left of the original machine. But with the coming of a new type of power a more intensive study has been made of the detail requirements for economical shunting; the needs can be met very fully by a suitable design of diesel locomotive, and consequently shunting—a non-revenue earning part of the railway business—has been speeded up appreciably and the dead financial loss reduced.

Although what may be termed the basic principles of efficient shunting are understood, there are several specialised requirements which are not so fully recognised, and which in certain

cases may vary with each application. Two of these mentioned by Mr. Fairburn deserve emphasis here; they are the necessity of a fine speed graduation at very low velocities when working in hump yards, and the desirability of being able to reverse the locomotive before it comes to rest. With speeds up the hump averaging, say, only 1·0 m.p.h., a 10 per cent. increase or decrease can have a considerable influence in the break-up time of a long freight train. Similarly, the reversal of a locomotive before it is actually at rest tends to speed up the movement, and, further, relieves the driver of the responsibility of having to observe the exact moment at which to throw over the reversing handle. The operation of shunting locomotives in a really efficient manner in large mechanised or non-mechanised yards simply bristles with problems of great traffic and mechanical engineering interest, and others to which Mr. Fairburn referred will be found in the abstract of his paper published in the May issue of the *Diesel Railway Traction Supplement*. But the real case in favour of diesels for shunting is nothing more than their amazing ability to stand up to the most strenuous duties which can be given them, and to do it month after month at the rate of 140 to 150 hr. a week.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

"The Railway Gazette" in Australia

221, Orrong Road,
Toorak, S.E.2, Melbourne,
Victoria, Australia
February 8

To the Editor of The Railway Gazette

Sir,—Thanks to the Royal and Merchant Navies, *every* issue of The Railway Gazette from the outbreak of war to December 6 inclusive has been received by me.

Yours faithfully,
EDWARD PRESSLAND JONES

Advantages of a Toll Road System

Ewell, Surrey
April 28

To the Editor of The Railway Gazette

Sir,—The editorial article in The Railway Gazette of April 18 seems to me to strike at the root of the trouble which is afflicting the internal transport system of this country. In its advocacy of a system of tolls for road transport it recognises a fundamental fact which is persistently blinked by the many who air their views and plans as to means by which the road and rail problem may be solved or mitigated. This is that the development of roads and road vehicles has in effect brought us back to the position which obtained before the railway systems stretched the length and breadth of the country. Once more the roads have become main highways of the country, alternative to the railways.

Sir Osborne Mance, in his letter published in The Railway Gazette of April 25, seems to me to interpret "toll gates" too literally. I envisage, not a steel or wooden structure placed across roads, but either a system of lights or better, specified areas of operation. If the latter were adopted—perhaps the existing registration and taxation centres might be the focal points—registration labels in varying colours could be affixed to the windscreen and the road authority's employees could see at a glance whether the vehicle was operating in its appropriate area. I see no reason for Sir Osborne Mance's criticism relating to delays arising from "verifying the contents of vehicles at each toll gate." The point would not arise, for the payment would be the same, since it would be based on tonnage capacity and radius of operation, whether diamonds or fertiliser were the traffic.

The functions of the suggested Public Roads Authority would obviously be important to the transport industry under the scheme outlined in The Railway Gazette but perhaps the benefits which would accrue to other sections of the community are not so immediately apparent. If the authority became responsible for the construction and maintenance of all the roads in the country local rates would be relieved of a very considerable burden. Presumably, too, lighting and policing of roads would be a function of the authority and this again would benefit local rates. It should not prove impossible to arrive at an equitable division of the cost of police duties between the roads and their primary and original function of crime prevention. It may be recalled, however, that when traffic lights were first introduced Scotland Yard estimated that the control of a road point by police cost on an average £400 a year, and it is obvious, therefore, that, even with the very considerable extension of automatic lighting control of road junctions which has been introduced, a measure of economy could be effected in this direction alone. Local authorities would be relieved of the cost of maintaining road engineers, and, lest it should be argued that the introduction of a scheme of centralised road control would result in widespread unemployment in this direction, it may be said that a great number of these engineers would necessarily be absorbed into the service of the authority.

A system of toll gates would also be of considerable value in such matters as apprehension of escaping criminals; the enforcement of speed limits and so forth.

There remains, of course, the all-important matter of the financing of the scheme. It would be necessary for the scheme to be complete for the authority to take over the whole road system of the country, for unless this was done it would be fairly easy for road users to bypass the toll gates. The cost of bringing into being the Public Roads Authority need not be large as expenditure is considered in these days. The roads could be vested in the authority without any complicated compensation plan, for in the present circumstances they are more of a liability than an asset, since they are unproductive of revenue and costly in their maintenance. The annual expenditure on roads is of the order of £60,000,000 and it would be necessary for the authority to be in receipt of an annual income of considerably more than this if it was to perform satisfactorily its function of maintaining the roads and improving them, since it would fall to the authority to put into effect the many large scale works of construction which the road system of this country so patently needs.

On the other hand the authority would have at its disposal a very fruitful source of revenue. Fuel tax and licence costs as at present understood could be greatly reduced, since they would not have to bear road expenditures, and could become entirely revenue taxes. The payment of the road user for his permanent way and signalling could be collected at the toll gates. It would no doubt be simple and convenient to introduce a form of season ticket which would permit the use of the vehicle within a specified area of its own base. The cost of this ticket could vary with the size and nature of the vehicle and with the radius of its availability. Thus the small private car which was intended to operate within a radius of say 25 miles of its own garage for shopping, local visiting, and so on, would make the smallest contribution, and the heaviest goods vehicle covering the length and breadth of the country would pay the highest figure. The private motorist or the road haulier who wished to make occasional journeys of much greater length than normal—for instance for holidays or for the delivery of special loads—would be able to buy a special ticket to cover his requirements; in effect he would be on a parallel with the railway season ticket holder who on the occasion of his annual holiday buys a period return ticket.

The scheme could be greatly helped by vesting in the Public Roads Authority the right of public sale of petrol and oil for private and commercial consumption. It would be

necessary to compensate present owners of filling stations, but the cost of this, although no doubt running into many millions of pounds initially, could hardly be deemed a deterrent having regard to the vast sums which are daily available for the prosecution of the war—sums of which it may be said that, though essential in their disbursement, hold no promise of financial return, whereas in the case of monopoly of sale of essential motor fuel a satisfactory income could be assured. Moreover, in view of the considerable concentration of motor fuel distributing facilities which has been brought about for national reasons during the war, a scheme of this kind would be considerably simplified by its adoption before the mushroom growth of petrol filling at car servicing stations is resumed after the war.

If petrol filling stations and vehicle-servicing plants were concentrated at the toll gates, the problem of staffing would be simplified and it is possible to envisage these points becoming centres of refreshment and entertainment which could also be turned to account from a revenue viewpoint.

It may well be argued that the introduction of a Public Roads Authority on the basis outlined would lead to the growth of yet another bureaucracy, but one more among so many could hardly be a valid reason against the adoption of the scheme; it might indeed tell in its favour, for it would provide a means of employing considerable numbers of those who after the war will be seeking work.

From the motor vehicle industry point of view the scheme would have the advantage that the payments made would at least go to the improvement and maintenance of the road system and would no longer be diverted to the national Exchequer as was the case, to a very large extent, to payments made into the old Road Fund. Some idea of the direct contribution to the solvency of the scheme which would be made by the motor industry may be judged from the fact that in the present Budget motor vehicle duties are estimated to bring in £39,000,000. In 1938 when motor vehicle duties brought in only £34,600,000, motor fuel tax (which has since been largely increased) raised some £44,500,000, and these two would therefore give a basic income of at least £80,000,000. The scheme at least would show better prospects of success than many which have borne fruition.

Faithfully yours,
B. W. C. COOKE

A Minister's Dreams: Your issue of April 18

The Front Line,
Somewhere in England
April 25

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Although I have numerous press letters to my discredit this is the first I have addressed to THE RAILWAY GAZETTE, and I think is also the first I have ever written in defence or support of a Minister.

Now really Sir, before we, the great reading public, can judge whether the Minister is " so transitory " or whether you yourself are more brabblesome, one of you should define the word " train." (It is only logical that a Minister of Transport who is a staunch Conservative should be styled " Transit-Tory.") I imagine that the Colonel had in mind a complete set with engine, tender, and coaching stock. Surely the through services to which you refer were hauled by engines belonging to the " home " team in every case. I suggest that in the minds of our surprise-loving Plymouth brethren and the too familiar dwellers north of the Tweed, this constitutes a distinction and all the difference in the railway world.

By the way, perhaps neither of you know how one can tell the system of which any given section of line forms part, well here is the answer. You wait for a goods train to pass—carefully note the markings on the trucks and the missing one is the system. For example the train consists of 60 per cent. trucks marked G.W.R., 15 per cent. marked L.M.S.R., 25 per cent. marked S.R., then you are standing on the L.N.E.R.

In conclusion neither you nor the Minister should make jocular remarks concerning our railways. They are very serious things and we must not in any circumstances give an opening for some frivolous wit to dub our Government Department the " Ministry of Trainsport."

Yours faithfully,
" PRO BONO TRANSPORTO "

THE SCRAP HEAP

The smallest community in Great Britain to hold a War Weapons Week, the Isles of Scilly (1,632 population), collected £32,000, after aiming at £5,000.

* * *

One hundred years ago there were fewer than 3,000 miles of railway in the U.S.A. Today there are 410,118 miles—enough to make 133 parallel transcontinental tracks between New York and San Francisco.

* * *

A Wall Street broker, I'm told, left the following will :—

To my wife, I leave her lover, and the knowledge that I wasn't the fool she thought I was.

To my son, I leave the pleasure of earning a living—for 35 years, he thought the pleasure was mine. He was mistaken.

To my daughter, I leave £20,000—she will need it—the only piece of business her husband ever did, was to marry her.

To my valet, I leave the clothes he has been stealing from me for the last ten years—also the fur coat that he wore last winter at Palm Beach.

To my chauffeur, I leave my cars—he almost ruined them, and I want him to have the satisfaction of finishing the job.

And lastly, to my Partner, I leave the suggestion that he take some other man in with him if he expects to do any business.—*" Critic " in " The New Statesman."*

* * *

FRIDAY THE THIRTEENTH

Friday, December 13, lived up to its reputation and dealt the Pennsylvania's New York Zone a couple of blows below the belt in the short space of five minutes. At 6.25 p.m. a broken catenary wire made it necessary to turn off power on all tracks of the busy line between Newark, N.J., and Pennsylvania station, New York, and eastbound trains were tied up until 7.30 p.m. and westbound trains until 8.15 p.m. Five minutes after the break—at 6.30 p.m.—a fire of undetermined cause was discovered in the old erecting shop at Meadows shop (between Jersey City and Newark). The shop—which is being used for storage—was considerably damaged.—*From the " Railway Age."*

* * *

" You need more exercise. What's your trade ? " inquired the doctor.

" Platelayer."

" Then lay an extra plate every day."
—*From the " Newcastle Journal."*

Left: A warning sign at the village of Bolton Low Houses on the Cockermouth–Carlisle road, Cumberland. Right: Warning notice at the Somerset village of Uphill. The letters are the initials of the old Somerset Automobile Club

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

INDIA

£3,247,500 Surplus for Government

The Railway Board has now issued its administration report for the year ended March 31, 1940, and the following are some of its salient features.

State-owned railways showed a net surplus of £3,247,500 after meeting all charges including depreciation and interest, and this sum was placed to the credit of the general revenues of the Government of India. Actually it is £225,000 less than the full contribution due from the railways for the year.

Increased revenues in 1939-40 were provided, in the main, by heavier goods traffic due to conditions created by the war and, to a lesser extent, to enhanced rates and fares. Passenger traffics fell slightly, fewer passengers being carried over a fractionally shorter average distance.

WESTERN AUSTRALIA

A Special Interstate Consignment

Recently an unique consignment was transported by rail from South Australia to Western Australia. This comprised six reaper-binder agricultural machines from Port Adelaide to Perth, a distance of 1,600 miles, involving two transhipments *en route* on account of breaks of gauge at Port Pirie and Kalgoorlie. The machines were urgently required to meet orders in Western Australia, and although such traffic is usually transported by sea, the manufacturers turned to the railways for safe transport, as shipping is now so uncertain. In view of the urgency with which the machines were required, special arrangements were made for their transport, and these were carried out without hitch, to the great satisfaction of the owners.

CANADA

C.T.C. on the C.N.R.

It is announced that the Canadian National Railways are to instal centralised traffic control in their Atlantic Region, between Pacific junction, Moncton, and Truro, a distance of about 136 miles.

The similarity in operating conditions early led to the application of American methods to the Canadian railways. The train dispatching arrangements are substantially similar in the two countries, and automatic and power signalling of American design was gradually adopted in this country, including the absolute permissive system of control for automatic signals on single lines. The three-position semaphore was favoured for some time, but in due course the light signal made its appearance; American methods of level crossing protection are also used in the Dominion. It was only to be expected, therefore, that C.T.C. would meet with approval here, and considerable stretches of line will probably be equipped with it, once this initial installation has proved its worth.

UNITED STATES

Famous Ferry Discarded

On Sunday, February 9, the historic car ferry *Gouldsboro*, used for many years by the Texas & Pacific Railway between its terminal at Gouldsboro and New Orleans, made its last trip. The ferry was built on the hull of a Federal ironclad that saw service in the civil war.

SPAIN

Railway Stock Market Reopened

The negotiation on the Bourse of railway securities was suspended by Government order in September, 1940, to prevent speculation pending the publication of the nationalisation scheme. The suspension was removed and negotiation re-established on February 1, by an order of the Ministry of Finance, this date coinciding with that of the taking over by the State of all the broad gauge railways. On the first day between 270 and 290 transactions for the Northern Company's 550-peseta shares were recorded—as compared with 192 before the suspension—and 207 to 250 for M.Z.A. ordinary, as against 153 at the earlier date. Northern first debentures were valued at 71 per cent. compared with 51·50 per cent.

The Madrid Underground

Traffic on the Madrid Metropolitan Underground system continues to increase, taxing the resources of the company. The number of passengers carried increased in the year 1940 to 180,000,000, or over 28 per cent. more than in 1939, when 140,000,000 were carried. The company recognised the efforts of the staff to cope with the extra work by the payment during the year of four bonuses, of one month's pay each. In 1941, 32 new carriages, constructed in the country, will be placed in service. The new Sol-Plaza de España-Arguelles line is expected to be opened shortly, when work will begin on the new transverse line under the boulevards, connecting the Arguelles and Serrano districts through the Glorieta de Bilbao and the Calle de Goya. The construction of this new line, about 4 km. (2½ miles) in length, is expected to be finished in about 2½ years' time.

Railway Employees' Association

This year the Spanish Railway Employees' Association celebrates the 50th anniversary of its foundation, and in honour of the event, the Minister of Public Works presided at the recent meeting held in Madrid, which was also attended by many prominent Government and railway officials. The association now has over 71,000 members, the number of retired employees drawing pensions has passed the 14,000 mark, and the total paid out to these pensioners exceeds 12,000,000 pesetas (about £300,000) annually. The association has 20 colleges in different parts of the country, where some 15,000 children of railwaymen are taught, besides orphanages sheltering some 5,000 orphans. Over 30,000 families take advantage of the medical services provided by the association.

SWEDEN

Record State Railways Profit in 1940

The State Railways registered record profits in 1940. Some of the principal financial figures are given below in million kronor :—

	1939	1940	Increase per cent.
Passenger earnings ...	95	125	31½
Goods earnings*	140	195	39½
Total earnings	235	320	36
Total receipts from all sources	283	361	27½
Total expenditure† ...	211	267	31
Net traffic earnings ...	72	94	—
Interest on State capital ...	27	35	30
Net profit	45	59	31

* Exclusive of Lapland iron ore earnings.
† Exclusive of interest on State capital, but inclusive of allocation to Renewal Fund, namely Kr. 27 and 35 million in 1939 and 1940 respectively.

Reasons for Improvement

When war broke out the capacity of the railways was severely taxed by traffic for the military and civil authorities, and a very heavy volume of foodstuffs traffic devolved upon the system, instead of being carried as previously by sea and by road.

It is of some interest to note that during the winter of 1940-41 it is expected that between 17,000 and 18,000 wagon loads of charcoal will have been carried, exclusive of charcoal for producer gas plants for motor vehicles. Due to scarcity of petrol and coal, large quantities of firewood were moved by rail; in the weeks ended February 1, 8, and 15, 1,900, 2,400, and 2,700 wagons, respectively, were loaded with this fuel.

Rail and Road Passenger Services

Despite curtailment of passenger train services, 57,200,000 passengers were carried in 1940 as against 50,600,000 in 1939. State Railway bus services were severely hit by the petrol shortage and had to be curtailed to only about 40 per cent. of the normal traffic during the most critical periods. Producer gas plants are, however, being provided as fast as possible, and it is hoped that 60 per cent. of the normal services will be running again shortly.

Electrification and Other Improvements

Electrification is progressing satisfactorily, and about 90 per cent. of the State system is now being electrically worked. Extensive line doubling works are in hand and various reconstruction works are being carried out.

THE ORIGIN OF THE MORSE CODE

Contrary to general belief, the Morse alphabet familiar to British railway telegraph staff is not the one drawn up by Morse himself, but a development thereof

IN the article on the centenary of the Morse telegraph, in our issue for December 25, 1936 (page 1054), reference was made to the fact that the Morse code, as generally used in international communication today, is not arranged in the form originally drawn up by Morse himself, which contained features little known outside America. Although both the Morse and single needle telegraphs have been largely superseded by teleprinters and telephones, they are still used in railway service, the former being popular in India and other parts of the British Empire. The single needle has all along been essentially an English telegraph instrument—as was its companion the shorter lived double needle—and the alphabet used with it, although, of course, this was not the case at first, is merely the Morse code adapted to two signals of equal duration, as with Bright's bell instrument.

Morse s Original Code

Morse first thought of constructing a telegraph capable of printing conventional signs on board ship, during a voyage home from Havre to New York in 1832, but it was some time before these signs took the form of the now familiar dot and dash. His first telegraph line was opened between Baltimore and Washington on May 27, 1844. His alphabet had by then, of course, been definitely arranged, in consultation with G. and A. Vail, of New Jersey, who had joined him in his experimental work. The principle Morse adopted was to make the dot, or shorter sign, the basic unit, the dash, or long sign, being twice as long and equal to two units. (Later it was made three times as long, for greater distinction, and this is the present practice.) The space between the elements forming one letter was equal to one unit, and that between complete letters equal to three units. Morse sought to allocate the most rapidly made signs to the letters occurring most frequently in English, and to have no letter exceeding nine units in length. The code he arranged on this basis is shown in Fig. 1. It will be noticed that the letter L is a double length dash and that in five of the letters, C. O. R. Y and Z, there is a space between two of their elements equal to *two* units.

This small distinction between otherwise similar signs manifestly called for great care in transmitting and receiving, and it was not long before Morse recognised the inconvenience of the spaced letters and proposed to reform his code. He found it too difficult, however, to introduce an alteration by that time. There was opposition to it on the part of those engaged in the practical work and, to quote the American telegraphic historian, Prescott, the disadvantage was "reluctantly suffered to continue." Morse's alphabet therefore remained, and still does, we believe, the accepted one in North America for internal communication. Alexander Bain, however, the Scottish telegraph inventor, who settled in America, employed dot and dash signs there for his electrochemical telegraph in 1849, and avoided the spaced letters; all his signs are found in the international alphabet of today, although not always for the same letters, only four of them, A. E. I and X, having the same meaning now.

The Morse Apparatus in Europe

When Morse brought his telegraph to Europe it met with no success at first in England and France—in England the needle instruments were by then firmly established—but it was very favourably received in Germany and Austria and one or two other countries round them. The first Morse line in Germany was opened between Hamburg and Cuxhaven in 1848, under the direction of an engineer named Gerke. At his desire, the inconvenience of the spaced letters was avoided at the outset, an alphabet drawn up by him being used. Some differences crept in elsewhere, however, but on July 1, 1852, the States adhering to the Austro-German Telegraph Union all adopted one alphabet, which was substantially Gerke's. By 1859 it was in common use throughout Europe. It was adopted in 1865 by the International Union, for all international purposes, and remains in use today, not only for telegraphy, by wire or radio, but for flashlamp, flag and whistle signalling at sea and in the forces.

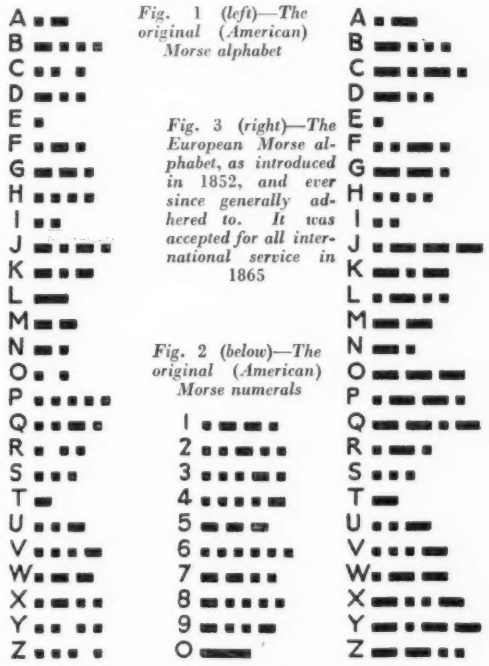


Fig. 1 (left)—The original (American) Morse alphabet

Fig. 3 (right)—The European Morse alphabet, as introduced in 1852, and ever since generally adhered to. It was accepted for all international service in 1865

Fig. 2 (below)—The original (American) Morse numerals

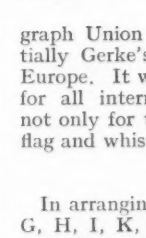


Fig. 4 (above)—Bain's numerals. In 1852 his numerals 1 to 5 were adopted unchanged, 6 to 9 were arranged in reverse sequence, and 0 altered to five dashes. This is their form today

Fig. 5 (above)—The international Ä, Ö, Ü, and É, originally Bain's M, N, and V, and Morse's 2

The International Morse Code

In arranging the reformed code, Morse's letters A, B, D, E, G, H, I, K, M, N, S, T, U, V, and W were retained. His spaced letters C, O, R, Y, and Z were, of course, discarded, with his double-dash L and five-dot P. The new O and P were taken direct from Steinheil's alphabet (Steinheil of Munich, discoverer of the earth return circuit in 1837, had worked on somewhat parallel, but independent, lines to Morse).

The new X was Bain's X, Bain's F and W became J and Z; Q and Y were due to Gerke. Fig. 3 shows the complete alphabet, known to British railwaymen today. (Four of these signs, O, P, X, and Z, actually also formed part of Morse's original numerals, as a comparison of this figure with Fig. 2 will show.)

The international numerals, also drawn up by the Austro-German Union and introduced in 1852, were compiled as follows. Numerals 1 to 5 were taken as they stood from Bain, his 6 to 9 were arranged in reverse sequence, his 0 was discarded and a new one, five dashes, adopted, as shown in Fig. 4. The "short" numerals used for certain services, most of which are actually alphabetical signs, call for no

particular mention. They have, of course, to be preceded and followed by special distinguishing signs.

Although not required in ordinary British railway work, the international code made provision for certain accented letters, such as Ä, Ö, Ü and É, as illustrated in Fig. 5. The principal punctuation signs have also long been agreed on.

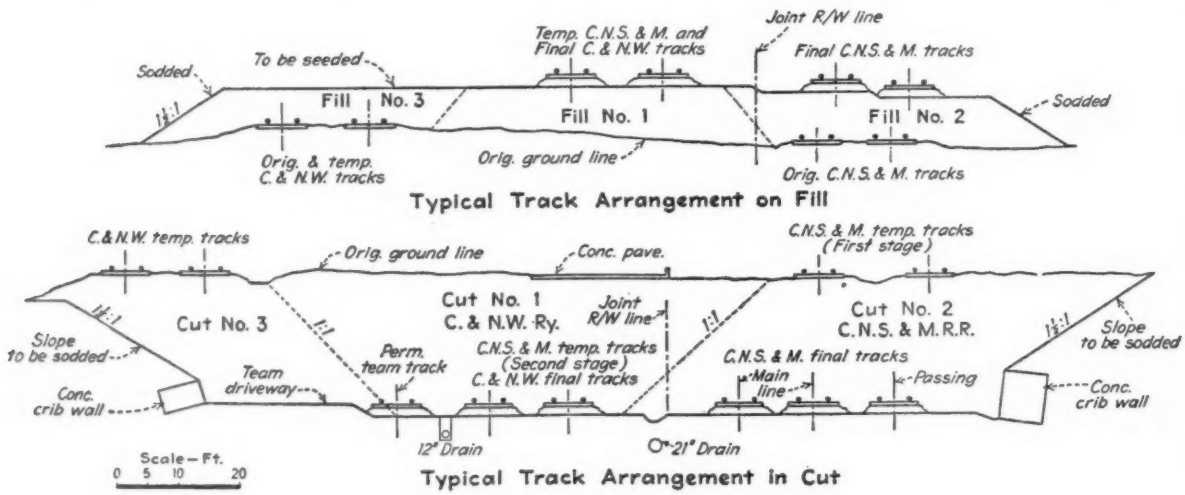
With the general adoption of this code the old single needle alphabets—there were two or three known—gave place to the plan whereby a beat of the needle to the left, or a given tone on the sound plate or Bright's bell, stood for a dot, and a beat to the right, or another tone, represented a dash, so bringing single needle and Morse sounder working into agreement.

COMPLICATED SIX-TRACK REGRADING IN AMERICA

Over a distance of three miles the parallel C. & N.W. and C.N.S. & M. lines are being lowered into cutting in four stages

IN order to eliminate level crossings in the populous Chicago suburb of Winnetka, the steam-worked Chicago & North Western and the electric Chicago, North Shore & Milwaukee Railroads—which run parallel and both carry heavy traffic—are being regraded so as to run through a three-mile cutting on their original alignments. This is being effected without interruption of traffic—210 trains a day—a matter of some delicacy, as excavation for one set of tracks without endangering adjacent tracks is difficult.

First of all, a temporary track was laid just inside the western land boundary with new permanent way, and


Joint R/W line
Temp. C.N.S. & M. and Final C. & N.W. tracks
Final C.N.S. & M. tracks
Sodded
To be seeded
Fill No. 3
Fill No. 1
Fill No. 2
Sodded
Orig. & temp. C. & N.W. tracks
Orig. ground line
Orig. C.N.S. & M. tracks
Typical Track Arrangement on Fill
C. & N.W. temp. tracks
Orig. ground line
Conc. pave.
C.N.S. & M. temp. tracks (First stage)
Cut No. 1 C. & N.W. Ry.
Joint R/W line
Cut No. 3
Cut No. 2 C.N.S. & M.R.R.
Slope to be sodded
Perm. team track
C.N.S. & M. temp. tracks (Second stage) C. & N.W. final tracks
C.N.S. & M. final tracks
Main line
Passing
Slope to be sodded
Team driveway
Conc. crib wall
Conc. crib wall
12" Drain
21" Drain
Scale—Ft. 0 5 10 20
Typical Track Arrangement in Cut

Typical track arrangements in cut and on fill, looking north

Chicago & North Western traffic was then transferred to it, enabling one of the original C. & N.W. tracks to be removed and relaid beside the first temporary track. This involved the building of temporary stations and road approaches, also alterations to buildings and a timber yard siding. The second C. & N.W. original track was then taken up and kept ready for relaying as a permanent track. Changeovers were effected on Sundays without interruption of traffic.

The second stage of the work consisted of excavating a cutting beside the temporary tracks for the permanent C. & N.W. line, and the building of temporary road overbridges, diversion of sewers and mains. Considerations of lateral space necessitated the revetment of this cutting with timber piling and breastwork. Two tracks were then laid in the cutting, equipped with temporary overhead electric transmission lines, as the Chicago North Shore traffic was next transferred temporarily to these tracks. This enabled the original North Shore tracks to be removed, and the cutting to be widened eastwards; the three final and permanent North Shore tracks were then laid in this cutting widening, all these works comprising the major portion of the third stage. This also included extensions of the temporary road bridges, completion of the cutting drainage system, erection of permanent North Shore stations and overhead equipment.

The fourth and final stage will include the transfer of the C. & N.W. traffic to the permanent tracks, now vacated by the North Shore traffic, and the removal of the C. & N.W. temporary tracks. This will enable the cutting to be widened westwards to accommodate the third track and a rail-level roadway. The permanent road overbridges will also be completed and the temporary ones dismantled, also the temporary overhead equipment. Stations will be built and approach roads constructed and the work generally completed.

The work, estimated to cost $3,756,000, is being financed as follows. The cost to the two railways is to equal that of the provision of level crossing protection. The local authority is to bear the remainder of the cost less that covered by Government grant, so one gathers from our American contemporary *Engineering News-Record*, on which this description is based and whose diagram is reproduced herewith. This is a bare outline of the work as carried out, and, in addition, there was much complicated bridgework, road diversion and other subsidiary work. To give some idea of the magnitude of the undertaking, which will cost nearly £1,000,000, it may be added that it eliminated 10 level crossings over both lines, and involved the handling of over 1,000,000 cu. yd. of earthwork and the building of seven permanent road overbridges, four complete stations and six additional platforms, and the laying of 20 miles of track.

ELECTRIC TRACTION SECTION

Single-Phase Motor-Van Tests

Observations made during special trial runs with three units delivered to the Swiss Federal Railways in the first half of 1940

IN the May 24, 1940, issue of the *Electric Traction Supplement* an illustrated description of three new double-bogie power vans of the Swiss Federal Railways was published. These vehicles were intended for the haulage of fast lightweight trains, more particularly between Geneva and Zurich, and have a maximum speed of 125 km.p.h. (77½ m.p.h.) and an empty weight of 47 tons. The electrical equipment was supplied by Brown Boveri, Oerlikon, and Sécheron, and the mechanical portions were built by the Swiss Locomotive Works, Winterthur. The wheels are 900 mm. (35½ in.) in diameter, the gear ratio is 1 : 3·17, the one-hour rating 1,340 h.p. at 91 km.p.h. (56½ m.p.h.) with a tractive effort of 3,900 kg. (8,600 lb.), the continuous output 1,250 h.p. at 93 km.p.h. (58 m.p.h.), and the maximum starting tractive effort 6,400 kg. (14,200 lb.).

Trial Routes and Trains

Comprehensive test trips were made with these power vans between Zurich and Romanshorn, Berne and Lucerne, and on the long circuit Zurich—Basle—Geneva—Berne—Zurich, and the results of some of them are given below through the kindness of Monsieur F. Steiner, Chef de Section I, Berne, Swiss Federal Railways. Normally the fast trains hauled would be made up of three of the new 29-ton all-metal coaches, giving a trailing tare load of 87 tons and a train tare weight of 134 tons. On the Zurich—Romanshorn tests the trailing load was made up to 109 tons and the total weight to 156 tons ; on the long Zurich—Basle—Geneva—Berne—Zurich run and the Berne—Lucerne route the total weight was 182 tons ; on a trip from Zurich to Bienne, Geneva, Berne and back to Zurich 209 tons gross ; and on a final run from Zurich to Geneva the gross load was 263 tons to Berne and 192 tons thence to Geneva.

Test Data

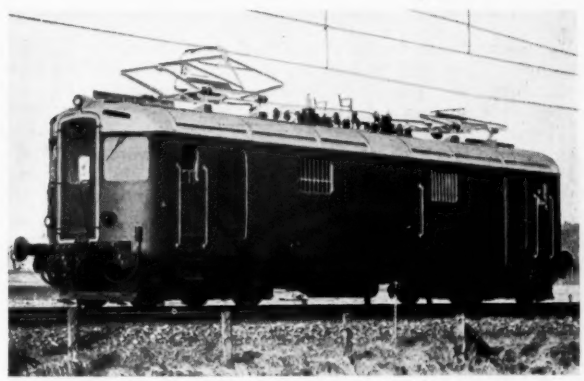
These runs took place as convenient over a space of six weeks, the vans meanwhile maintaining the usual rostered runs. The first trips were mainly to check and adjust the control and to run in the bearings. On each trip the trailing load was greater than on the preceding run, until a limit was set by the maximum current and heating values allowed.

The principal observations and measurements made for the satisfaction of the Swiss Federal Railways and to check the guarantees of the contractors were :—

(*a*) Measurement of the primary power absorbed at the 15-kV contact wire by means of a current transformer and voltage transformer as given by an ammeter, voltmeter, and recording watt-meter. The current transformers were set to two measuring scales, and the recording apparatus correspondingly gave a rapid or slow movement of the pencil over the cylinder. Thus it was possible to record with great exactitude just what happened under particular conditions, for example, when starting.

(2) Measurement of the amperage, voltage and power of the energy absorbed by the four traction motors. The current intensity was measured by a recording ammeter, the tension by a voltmeter, and the power by a precision watt-meter. On these trials observations were conducted on the motors of only one bogie on the vehicle concerned.

(3) Measurement of the temperature of various items of electrical equipment, more particularly that of the transformer



General view of Swiss 1,340 *h.p. power van*

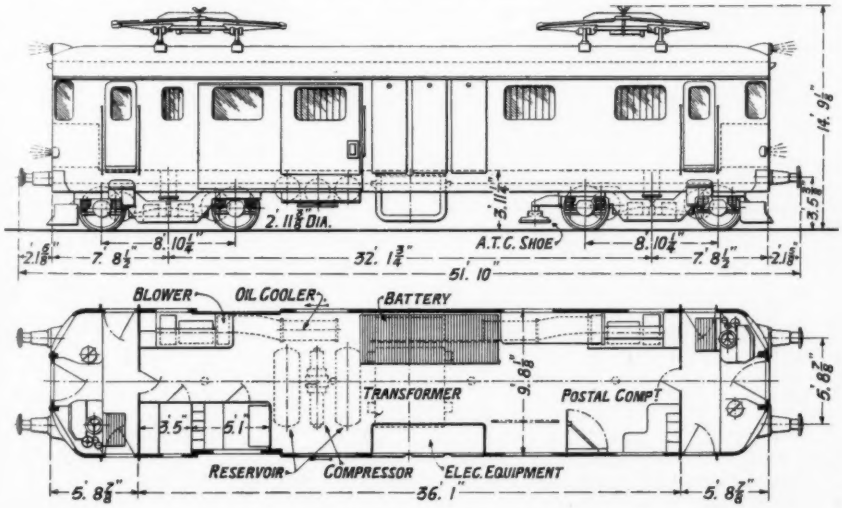


Diagram of the double-bogie power vans with individual axle drive as used on the 15-*kV* 16·6-*cycle single-phase system of the Swiss Federal Railways for the haulage of light and fast passenger trains*

TABLE I.—TEST RESULTS, ZURICH—ROMANSHORN AND RETURN (WITH ONE START ON A 1·2 PER CENT. GRADE)

Journey	Zurich—Romanshorn	Romanshorn—Zurich	Out and return
Load (power van, 47 tons ; 4 coaches, 109 tons)... ... ... tons	156	156	156
Distance ... ... km.	82·91	82·91	165·82
Total journey time ... ... min. sec.	61·30	81·30	143
Running time ... ... min. sec.	52·50	60·00	112·50
Running time with motors loaded ... ... min. sec.	34·45	41·10	75·55
Running time with motors coasting ... ... min. sec.	18·05	18·50	36·55
Total time at stops ... ... min. sec.	8·40	21·30	30·10
No. of controller handle cycles (0 position back to 0 position)	16	17	33
Energy consumption ... ... kWh	492	541	1,033
Specific energy consumption ... ... Wh/t-km.	38	41·8	—
Average running speed ... ... km.p.h.	94·2	82·9	—
Average primary current during motor-load periods ... ... amp.	51·8	55	—
Average tension at contact wire during motor-load periods ... ... kV	15·1	14·8	—
Average traction motor current ... ... amp.	648	658	—

oil, and those of the windings and brushes of the traction motors. These values were taken by means of finely-graded thermometers, remote-indication thermometers, thermo-electric pyrometers of both recording and non-recording types, and occasionally by means of resistances. To measure over voltages on the high-tension side, spark gaps were used.

Other notes made related to the time the air compressor was actually running, the charging of the battery by the rectifier, the heating of the train, and the cooling conditions of the braking resistances carried in the roof. Further interesting particulars related more to the mechanical portion of the vehicle were noted, including the exact r.p.m. of the driving wheels and any slipping or sliding motion and the determination of the degree of irregularity of rotation of the motor armature shaft through the elasticity of the pinion, by means of a torsiograph. Braking trials also formed a distinct part of the tests.

TABLE IV.—STARTING PARTICULARS WITH LOAD OF 209 TONS, S.B.B. POWER VAN

	Level	1·8 per cent.
Grade		
Current intensity after attaining control notch 20 ... amp	1,050	1,050
Duration of starting period ... ... sec.	148	200
Speed at end of starting period ... ... km. p.h.	110	76
Distance covered ... ... m.	2,778	2,045
Max. current intensity at traction motors ... ... amp.	1,150	1,150
Average acceleration ... ... m./sec.²	0·206	0·106

On the Zurich—Romanshorn trial (see Table I) the current consumption was 38 watt-hr. per gross *tonne*-km. outbound and 41·8 watt-hr. inbound. Over the 603-km. (376-mile) Zurich—Basle—Geneva—Berne—Zurich circuit (see Table II) the average out to Geneva was 30·1 watt-hr. per gross *tonne*-km. and 29·5 watt-hr. on the return journey. The Berne-Lucerne trip showed a consumption of 35·5 watt-hr. and 44·8 watt-hr. on the return journey. The average over the whole trials, comprising trips over at least half of the Swiss Federal main lines, was 35 watt-hr. per gross *tonne*-km.

One result of the observations was to show that the temperature curves of the transformer oil and the traction motor windings did not coincide either in degree or in form, and that the difference was most marked when there were frequent cooling periods (coasting or low current demands). The

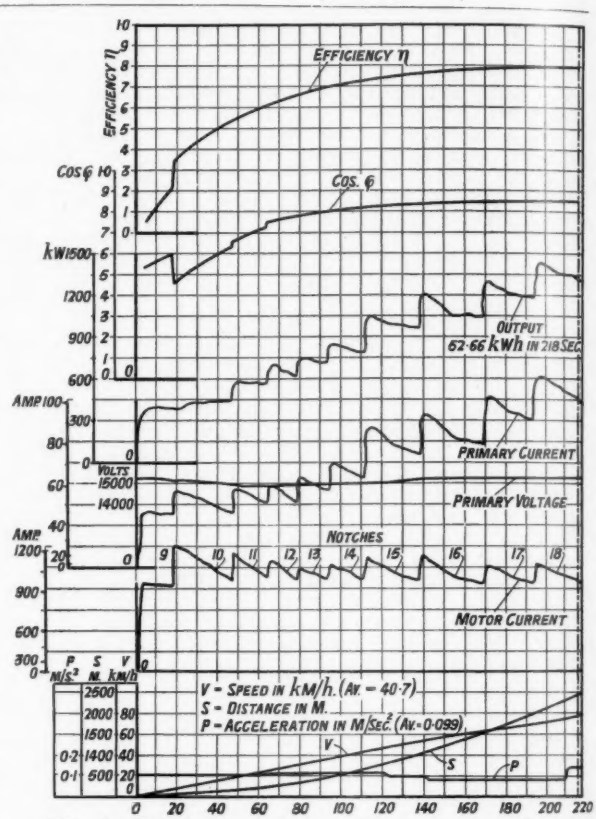


Fig. 4—Particulars of start on 1·8 per cent. grade between Lausanne and La Conversion, with 182-ton train including power van No. RFe 4/4 602

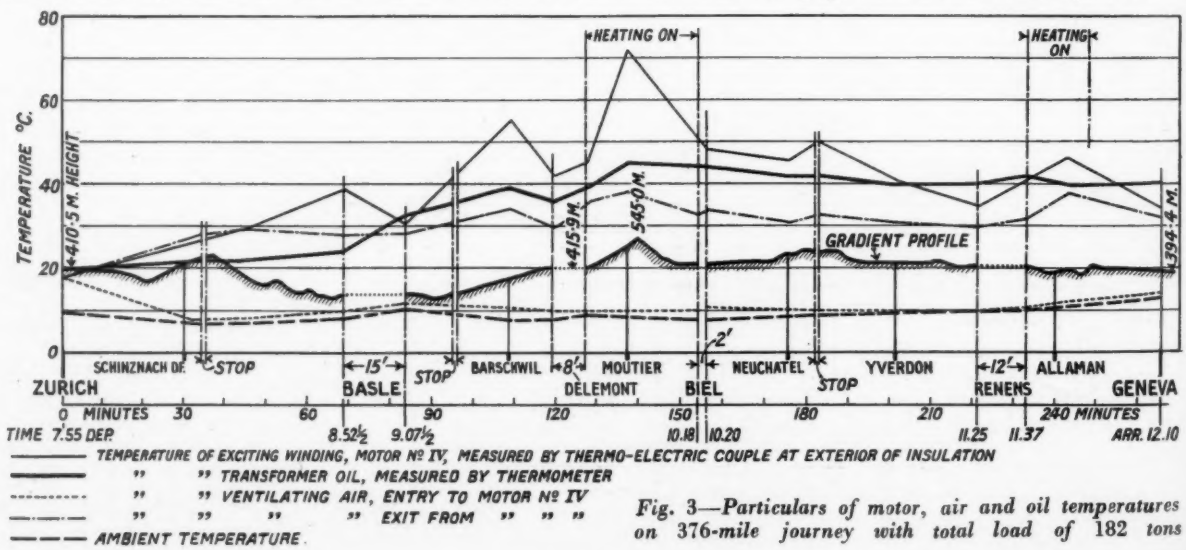


Fig. 3—Particulars of motor, air and oil temperatures on 376-mile journey with total load of 182 tons

TABLE II.—TEST RESULTS, ZURICH—BASLE—GENEVA—BERNE—ZURICH, WITH ONE SPECIAL START ON LEVEL AND ONE ON A 1·8 PER CENT. GRADE, S.B.B. MOTOR VAN

Journey	Running time	Energy consumption		Running time: Motors loaded		Running time: Motors coasting		No. of controller handle cycles	Length of run	Average speed	Remarks
	min.	kWh	Wh/t. km.	min.	per cent.*	min.	per cent.*		km.	km. p.h.	
Zurich—Basle	68½	345·5	22·1	36½	53·6	31½	46·4	12	88·42	77·7	including seven stops
Basle—Delémont	35½	282·6	40·6	28½	80·9	6½	19·1	10	38·29	64·7	
Delémont—Bienne	26½	276·5	43·3	18½	68·0	8½	38·0	7	35·00	78·6	
Bienne—Renens	65½	562·0	31·3	47½	72·7	17½	27·3	19	98·80	90·8	
Renens—Geneva	43	266·8	26·3	33¼	77·5	9¾	22·5	13	55·70	77·7	
Total or average	238½	1,733·4	30·1	164¼	68·8	74¼	31·2	61	316·21	79·5	
Geneva—Lausanne	35¾	289·0	26·3	28¾	80·4	7	19·6	11	60·21	101·0	including seven stops
Lausanne—Berne	69½	500·7	28·2	41	59·1	28½	40·9	15	97·18	84·0	
Berne—Olten	56¾	374·7	30·8	31½	56·0	25	44·0	20	66·89	70·8	
Olten—Zurich	44	378·0	33·0	24½	55·8	19½	44·2	13	62·68	85·5	
Total or average	206	1,542·1	29·5	126	61·2	80	38·8	59	286·96	83·6	
Summaries											
Zurich—Geneva	238½	1,733·4	30·1	164¼	68·8	74¼	31·2	61	316·21	79·5	
Geneva—Zurich	206	1,542·1	29·5	126	61·2	80	38·8	59	286·96	83·6	
Total or average	444¾	3,275·5	29·8	290¼	65·3	154¼	34·7	120	603·17	81·3	

* Of running time

transformer oil cooled more slowly than the winding of the self-ventilated motors, and this despite substantial cooling by air; the masses of the transformer and its oil are of relatively greater importance than that of a traction motor. The maximum temperatures coincided pretty closely with the end of a distance uphill, and in general they kept a little below the admissible limits.

Cooling of the braking resistances, measured during the Berne—Lucerne return trip, showed that the temperature varied most rapidly; their capacity for heat storage was inferior to that of the traction motors and main transformer. These resistances are arranged to correspond with all the possible brake applications on a 180-ton train (one power van and four coaches) on level lines and down a grade of 1·8 per cent. (1 in 55). The time in use of the first elements of the resistance during braking being short, and the intensity of the current being low when the train is being held to a steady speed while descending gradients, the resistance bank has been graduated in a fashion such that, for example, elements 3 to 6 carry a current of 400 amp., elements 13 and 14 about 640 amp., and nos. 19 and 20 about 780 amp. For a train of more than 180 tons weight, which has a longer braking period, or down grades steeper than 1·8 per cent., where the current is heavier, the heating of the resistances was seen to be excessive, and in such cases it was necessary to use the air brake to cope with the extra weight or give the additional braking force needed.

On the Zurich—Basle—Geneva—Berne—Zurich circuit of 603 km. (376 miles), covered in 7 hr. 25 min., the driver made 120 controller handle cycles (from zero position back to zero position), 201 stations and halts were passed, 660 signal indications observed, and about 300 air brake applications were made. The Romanshorn and "circuit" tests showed that the motors were taking current about two-thirds of the total journey time, but on the Berne—Lucerne trip, with seven stops, the time under load was only 50 per cent. of the total, whereas on the return trip, with only four stops, the time was about 62 per cent.

Other points from the test data are that on the Romanshorn, "circuit," and Lucerne trips the controller handle was at the zero position for a total of only 3½ min. of the running time, and that on the "circuit" the starting current rose to a maximum of 950 amp. In the first start, on the level, the energy consumption in the first 125 sec. was 33·85 kWh, corresponding to an average power of 975 kW; in the second start, up a 1·8 per cent. grade, the energy consumption in the first 218 sec. was 52·66 kWh, corresponding to an average of 869 kW. The current and other particulars of this start on the 1·8 per cent. grade are shown in Fig. 4; the speed at the end of 218 sec. was 78 km.p.h. (48½ m.p.h.).

Starting data observed on the occasion of the Zurich—Bienne—Geneva run, when the total train load was 209 tons are given in Table IV. In general, the running times of this trip over common parts of the line were the same as those of the "circuit" trip, although the gross load was 15 per cent. heavier, and with ambient temperatures of 8° to 12° C., the maximum temperature at the traction motor brushes was 75° C., and the peak temperature of the transformer oil 62° C.

The final test trip from Zurich to Berne and Geneva was an ordinary service journey, the van hauling seven light bogie coaches from Zurich to Berne and five thence to Geneva.

Journey	Running time	kWh	Wh per tonne-km.	Journey time: With motors under load	Journey time: With motors coasting	No. of controller handle cycles	Length of section	Average speed	Average time per controller cycle	Average current during journey time under load	Average current during braking periods	Average current from two preceding columns
	min. sec.			min. sec.	min. sec.		km.	km.p.h.	min. sec.	amp.	amp.	amp.
Berne—Langnau	32 20	330	47·7	21 20	11 00	12	38·0	70·5	2 42			
Langnau—Escholzmatt	13 13	180	66·5	11 23	1 50	5	14·8	67·2	2 39	—	—	—
Escholzmatt—Lucerne	35 42	108	13·9	7 32	28 10	7	42·8	71·9	5 06			
Berne—Lucerne, incl. 4 stops	81 15	618	35·5	40 15	41 00	24	95·6	70·6	3 23	—	—	—
Lucerne—Escholzmatt	38 44	487·2	62·5	32 42	6 02	8	42·8	66·3	4 50	667	40	707
Escholzmatt—Berne	48 03	291·9	30·4	29 37	27 26	18	52·8	65·9	2 50	326	221	547
Lucerne—Berne, incl. 7 stops*	86 47	779·1	44·8	53 19	33 28	26	95·6	66·1	3 28	478	140	618

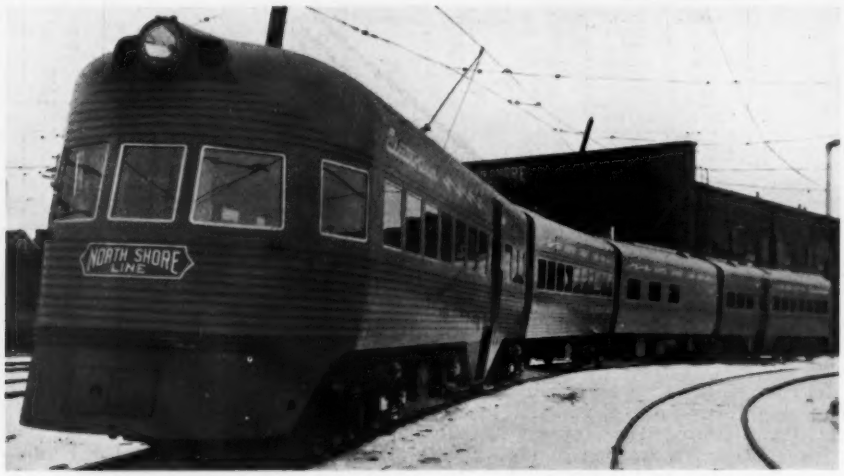
Summaries	Running time	Electric braking time	Average traction motor current related to: Running time	Average traction motor current related to: Braking time
	min. sec.	min. sec.	amp.	amp.
Berne—Lucerne	81 15	24 17	205	686
Lucerne—Berne	86 47	17 54	139	674
Totals	168 02	42 11	171	681

* Including one special start

TABLE III.—TEST RESULTS, BERNE—LUCERNE AND RETURN, WITH 182-TON TRAIN, AND ONE SPECIAL START ON 1 IN 55 GRADE ON LUCERNE—BERNE JOURNEY

New American Electric Trains

Semi-streamlined all-metal design for fast interurban service with closely-spaced stops



1,000 h.p. 89½-ton set with electrical equipment suitable for a top speed of 100 m.p.h.; collection of the 600 volts d.c. is by trolley

IT is not so very long since the celebrated Chicago, North Shore & Milwaukee Railroad was about to close down as a result of severe competition and other causes, as was detailed in the issues of the *Electric Traction Supplement* dated November 11, 1938, and January 6, 1939. But public opinion having insisted that the line be kept working the receivers permitted two ultra-modern high-speed articulated electric trains to be ordered, which could not only work the very fast—65 to 70 m.p.h.—point-to-point bookings more smoothly and economically than the existing multiple-unit trains made up of separate cars, but would also provide accommodation more in keeping with that which present-day travellers expect, and would use less current and have lighter maintenance charges over all the service rosters.

These two trains, dubbed by the railroad "Electroliners," were built by the St. Louis Car Company and are now in traffic. The four cars are mounted on five bogies and extend over a length of 155 ft. 4 in.; the tare weight is 89½ Engl. tons. High-tensile steel electrically-welded is used for the car frame construction with the end sills and bogie pivot supports of cast steel. Spherical pivots are used for the bogies, and the side bearers are of roller form attached to the bogie bolsters. Cast steel frames are used for the trucks. The suspension includes double equaliser bars and helical springs supplemented by shock absorbers. The bogie wheelbase is 7 ft. 2 in.

The two end vehicles are motor-coaches with luxury interiors, divided into two saloons by vestibules which provide the only entrance and exit means on the train, the two centre coaches having no outside doors. Each end car seats 40 passengers; one of the centre units also seats 40 passengers of the lower (coach) class, and the other inner vehicle is a tavern-lounge car with a seating capacity of 26.

There are eight 125-h.p. motors per train, mounted on the two outer bogies at each end; the motors are rigidly attached to the truck frames and drive the axles through flexible connections, a necessary arrangement for high speed.

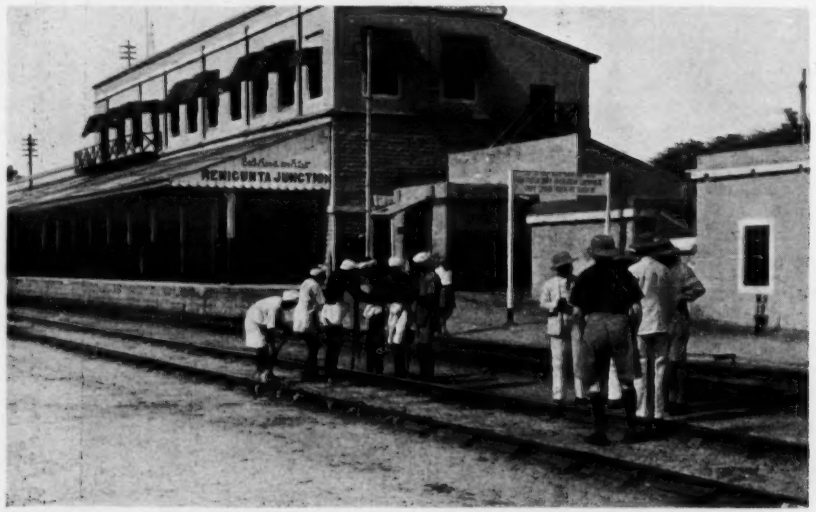
Interior of the all-coach vehicle in the new four-car multiple-unit trains of the Chicago, North Shore & Milwaukee Railroad. The interior decoration comprises floors of soft pearl grey with black and red borders, side panels in two shades of gray, and gray upholstery to harmonise

Typical Scenes on Indian Railways

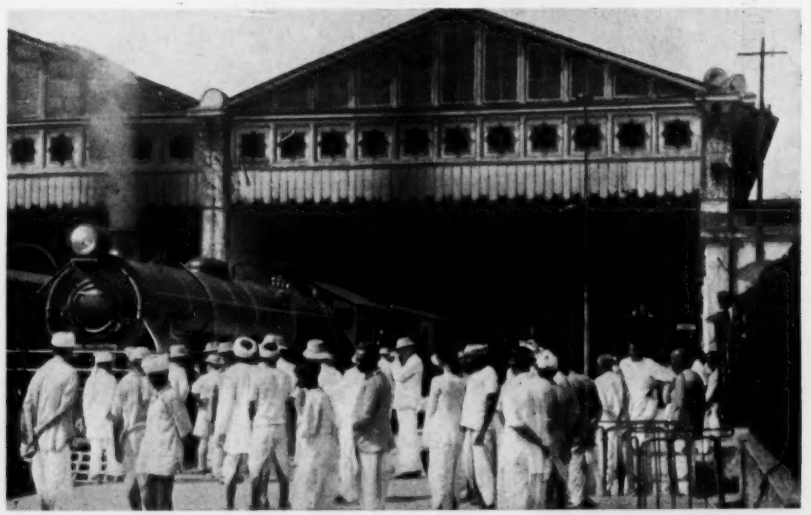
A series of photographs taken by Mr. R. Carpmael, M. Inst. C.E., a member of the Pacific Locomotive Committee, during its tour in India

"Almost a public highway!" illustrating the way in which lineside villagers wander across the railway

A typical Indian wayside station, Kashi, near Benares, East Indian Railway

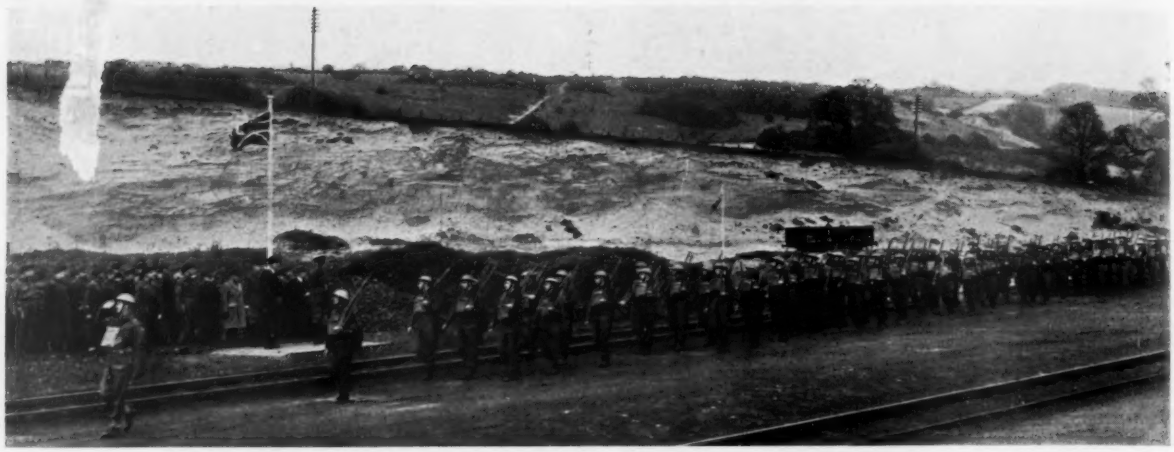


A permanent way gang at work at Renigunta junction



Sealdah terminus, Calcutta, Eastern Bengal Railway

British Railways and the War—67



March past of competing teams at final of Southern Railway Home Guard efficiency competition

Parade of competing teams at final of S.R. efficiency competition

A feature of the S.R. efficiency competition, held "somewhere in Surrey." Left: aircraft overhead; right: aircraft passed

(See page 507)

RAILWAY NEWS SECTION

PERSONAL

NEW L.M.S.R. CHAIRMAN

The board of directors of the London Midland & Scottish Railway Company on April 24 appointed Sir Thomas Royden as Chairman, in place of the late Lord Stamp.

Sir Robert Burrows was appointed Deputy Chairman.

L.N.E.R. APPOINTMENTS

Mr. E. Thompson, Mechanical Engineer, Southern Area (Western Section), to be Chief Mechanical Engineer in succession to the late Sir Nigel Gresley.

Mr. H. W. H. Richards, Electrical Engineer, to be Chief Electrical Engineer.

Mr. C. S. McLeod is to be Assistant Goods Manager (Scottish Area), in succession to Mr. G. S. Kellow who retired on April 29.

G.W.R. APPOINTMENTS

Mr. D. Blee, District Goods Manager, Liverpool, to be General Assistant to the Chief Goods Manager, Paddington, as from April 28.

Mr. A. E. Le Cheminant, Assistant District Goods Manager, London, to be District Goods Manager, Liverpool, as from April 28.

Dr. S. G. H. Gasson, M.B., Ch.B. (Edin.), who has been Medical Officer at Bulawayo for many years, has been appointed Principal Medical Officer to the Rhodesia Railways in succession to the late Dr. C. H. Dix-Hart, whose death we recorded in our November 8, 1940, issue.

We regret to record the death of Mr. J. L. Price, who was Agent-General for South Australia from 1925 to 1928.

We regret to record the death on April 22, at his home near Uttoxeter, of his Honour A. H. Ruegg, K.C., a County Court Judge for Staffordshire from 1907 to 1939. He was a leading authority on the law of workmen's compensation and published a standard work—Employers' Liability and Workmen's Compensation—as well as several other legal treatises.

Sir Harley Hugh Dalrymple-Hay, Consulting Engineer (Railways) to the London Passenger Transport Board, who died on December 17, has left estate valued at £87,787. We published a portrait and biographical note of Sir Harley in our January 10 issue.

Sir Thomas Royden, C.H., J.P., D.L., who as announced above has been appointed Chairman of the London Midland & Scottish Railway Company in succession to the late Lord Stamp, is the second baronet and was born on May 22, 1871. Sir Thomas was educated at Winchester and Magdalen College, Oxford. He became a Director of the Lancashire & Yorkshire Railway in 1909 and, on the amalgamation of that company with the London & North Western Railway in 1922, became a Director of the L.N.W.R. Upon railway grouping in 1923 under the Railways Act, 1921, Sir Thomas became a Director of the London Midland & Scottish Railway, and in 1940 was elected a Deputy Chairman. In June, 1934, he was appointed a representative of the L.M.S.R. on the Cheshire Lines Committee. He has been a prominent figure in shipping circles for many years and is a Director of the Cunard Steam Ship Co. Ltd., Cunard White Star Limited, Thomas & John Brocklebank Limited, and the Port Line Limited. He is also a Director of the Suez Canal Company, the Midland Bank Limited, and of many other commercial companies. He has also been Chairman of the Liverpool Steam Ship Owners' Association, and President of the Chamber of Shipping of the United Kingdom. Sir Thomas was Unionist M.P. for Bootle from 1918 to 1922. He was made a Companion of Honour in 1919.

Elliott] [& Fry

Sir Thomas Royden, Bart., C.H., J.P., D.L.

Appointed Chairman, London Midland & Scottish Railway Company

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Sir Robert Abraham Burrows, Kt., J.P., who is now sole Deputy Chairman of the London Midland & Scottish Railway Company, was born on March 17, 1884, and educated at Leys School, Cambridge. After some early business experience he began work in 1904 with Fletcher, Burrows & Co. Ltd., a concern which later became part of Manchester Collieries Limited. He is Chairman of Lancashire Associated Collieries and Vice-Chairman of Manchester Collieries Limited. He became a Director of the L.M.S.R. in December, 1937, and a Deputy Chairman in March, 1940. Sir Robert was one of the founders of the Lancashire & Cheshire Coal Research Association in 1918, and became its first President from 1918 to 1928. He was a Member of the Fuel Research Board from 1923-1927, and is a Past President of the Institute of Fuel. He was a High Sheriff of Cheshire for 1940 and is a J.P. for Cheshire. For some years before the King's accession, Sir Robert co-operated in running the Duke of York's Boys Camp of which he was Bursar.

Mr. Michael Dewar, Chairman of British Timken Limited, Birmingham, and the Fischer Bearings Co. Ltd., Wolverhampton, and a Director of the South Metropolitan Electric Light Company, has been bereaved by the loss on active service of his eldest son, Flying Officer John Michael Firth Dewar, R.A.F.V.R.

INDIAN RAILWAY STAFF CHANGES

Messrs. K. J. McNeill, J. B. Barclay, and W. T. Griffiths have been promoted to be provisionally permanent Deputy Traffic Managers, G.I.P.R.

Mr. K. Peddie, Deputy Chief Engineer, E.I.R., has been permitted to retire from Government service as from November 5 last.

We learn with regret that Mr. H. H. Mauldin, Divisional General Manager (Southern Area), L.N.E.R., is again seriously ill.

Mr. Edward Thompson, who, as already announced, has been appointed by the directors of the L.N.E.R. as Chief Mechanical Engineer in succession to the late Sir Nigel Gresley, was educated at Marlborough and at Pembroke College, Cambridge. He took the Mechanical Sciences Tripos in 1902, and subsequently served with Beyer, Peacock & Co. Ltd., and the Midland Railway Company. He left the Midland Railway in 1905 to join the staff of the Royal Arsenal, Woolwich, and in the following year was appointed to a position in the Running Department of the North Eastern Railway. In March, 1909, he became Assistant Divisional Locomotive Superintendent at Gateshead-on-Tyne, and during his service with the N.E.R. visited America. Mr. Thompson left the North Eastern on his appointment as Carriage & Wagon Superintendent of the Great Northern Railway at the beginning of 1912, and in March, 1916, went to the Royal Arsenal at Woolwich, on war service. In December, 1916, he proceeded to France, where he was attached to the Headquarters Staff of the Director-General of Transportation. By March, 1918, he had reached the rank of Lt.-Colonel, R.E., had been twice mentioned in despatches, and awarded the O.B.E., Military Division. Mr. Thompson was demobilised in March, 1919, and resumed his work with the Great Northern Railway. In October, 1920, he was appointed Manager of the North Eastern Railway carriage and wagon works at York. On grouping in 1923 he became Carriage & Wagon Workshops Manager, North Eastern Area, L.N.E.R., with office at Darlington, and in charge of the works at York, Shildon, and other points. Mr. Thompson came to London in June, 1927, as Assistant Mechanical Engineer, Stratford. He was promoted to be Mechanical Engineer, Stratford, as from April 1, 1930, and went to the North Eastern Area in a similar capacity at the end of 1933. In June, 1938, he was appointed Mechanical Engineer, Southern Area (Western Section), L.N.E.R., the position he now vacates on his appointment as chief of the Mechanical Engineering Department.

Mr. Edward Thompson
Appointed Chief Mechanical Engineer, London & North Eastern Railway

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Mr. H. W. H. Richards
Appointed Chief Electrical Engineer, London & North Eastern Railway

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Mr. H. W. H. Richards who, as already announced, has been appointed Chief Electrical Engineer of the London & North Eastern Railway, was born at Clifton, Bristol, in 1886, and educated at Bradfield College, Berks, and the Faraday House Electrical Engineering College, London. As an assistant engineer with Messrs. Kincaid, Waller, Manville & Dawson, Consulting Engineers of Westminster, Mr. Richards was engaged during the years 1909 and 1910 upon technical design and estimating costs in connection with railway electrification. He then joined the traction branch in London of the A.E.G., Berlin, as an assistant engineer and remained with that company until the end of 1912, in charge of the electrical equipment and rolling stock built by the Metropolitan Carriage, Wagon & Finance Company at Birmingham for the London, Brighton & South Coast Railway Company, and upon subsequent maintenance work in connection therewith. In January, 1913, he entered the service of the L.B. & S.C.R. as Electric Traction Engineer and in this capacity was responsible for electric rolling stock, repair sheds, overhead line equipment, distributing switch cabins and cables, and for the control of motormen on the 6,600-volt single-phase overhead system. During part of the war of 1914-19 he served with the Royal Engineers in France and then returned to the service of the L.B. & S.C.R. Upon grouping, he became Assistant Electrical Engineer to the Southern Railway in July, 1923, and held this office until his appointment in June, 1924, as Electrical Engineer, L.N.E.R. In the latter capacity he was responsible to Sir Nigel Gresley, as Chief Mechanical Engineer of the L.N.E.R. Under the new organisation just introduced, the department of the Electrical Engineer

has now been separated from that of the Chief Mechanical Engineer and Mr. Richards, as Chief Electrical Engineer, reports direct to the Chief General Manager. Mr. Richards is a member of the Institutions of Civil Engineers, Mechanical Engineers, and Electrical Engineers, and of the Institute of Transport. At the end of the 1922-23 session of the Institution of Civil Engineers, he was awarded the Telford Medal for his paper entitled "Twelve Years' Operation of Electric Traction on the L.B. & S.C. Railway." In 1933, he was awarded the George Stephenson Gold Medal and Watt Prize, also by the Institution of Civil Engineers, for his paper on "Primary Considerations Relating to Steam, Electric, and Diesel-Electric Traction." Reference to this paper was made in THE RAILWAY GAZETTE of February 24, 1933 (page 235) and in the Diesel Railway Traction Supplement of March 24 of the same year (page 15). On October 5, 1938, Mr. Richards was promoted to be Major, Territorial Army, Royal Engineers, Engineer & Railway Staff Corps.

Lord Stamp Memorial Services

THE ABBEY SERVICE

A memorial service for Lord Stamp was held on Wednesday, April 23, in Westminster Abbey. The Dean of Westminster, the Right Rev. P. F. D. de Labilliere, officiated, assisted by Archdeacon F. L. Donaldson, the Rev. Dr. Jocelyn Perkins, Sacrist, and the Rev. C. Hildyard. Bishop Hensley Henson read the Lesson. In addition to the family mourners, there were present in the large congregation :—

General de Jonge van Ellemeet, representing Prince Bernhard of the Netherlands; Lord Moyne, Leader of the House of Lords; Lieut.-Colonel J. T. C. Moore-Brabazon, Minister of Transport; the Lord Mayor of London; Seven High Commissioners, present or represented; Mr. Herschel Johnson, Minister and Chancellor of the United States Embassy; and many representatives of religious, civic, banking, economic, commercial, and other spheres.

The L.M.S.R. Company was represented by: Sir Thomas Royden and Sir Robert A. Burrows, Deputy Chairmen; Lord Aldenham, Sir Alan Anderson, Mr. S. R. Beale, Sir Ralph Glyn, M.P., Sir Guy Granet, Sir Francis Joseph, General the Hon. Sir Herbert Lawrence, Earl Peel, Viscount Runciman, Mr. G. R. T. Taylor, and Lord Wigram, Directors; Viscount Massereene and Ferrard, Northern Counties Committee; Sir William Wood, Sir Harold Hartley, Sir Ernest Lemon, and Mr. Ashton Davies, Vice Presidents; Mr. A. Eddy, Chief Legal Adviser and Solicitor; Mr. W. A. Stanier, Chief Mechanical Engineer; Mr. R. P. Humphrys, Assistant Solicitor; Mr. G. H. Loftus Allen. Advertising & Publicity Officer; Mr. J. Harrison, Stationmaster, Euston; Mr. J. B. Dunkley, Stationmaster, St. Pancras; and many members of the staff.

The L.N.E.R. Company was represented by: Sir Ronald Matthews, Chairman; Mr. C. H. Newton, Chief General Manager; Mr. V. M. Barrington-Ward, Traffic Superintendent (Operating), Southern Area.

The G.W.R. Company was represented by: Mr. Charles J. Hambro, Chairman; Lord Palmer, Deputy Chairman; Major the Hon. J. J. Astor, M.P., Director; Mr. F. R. E. Davis, Secretary, also representing the directors; Sir James Milne, General Manager.

The Southern Railway Company was represented by: Mr. Robert Holland-Martin, Chairman.

The London Passenger Transport Board was represented by: Lord Ashfield, Chairman; and Mr. C. G. Page, Secretary and Chief Legal Adviser.

Ministry of Transport representatives included: Sir Leonard Browett, Permanent Secretary; Colonel Sir Alan Mount, Chief Inspecting Officer of Railways; Mr. Gilbert S. Szlumper, Railway Control Officer; and Mr. R. H. Hill, Assistant Secretary. Sir Ralph L. Wedgwood, Chairman, and Mr. G. Cole Deacon, Secretary, represented the Railway Executive Committee.

Among others attending were: Mr. F. W. Mottley, European Freight Manager, Canadian Pacific Railway, representing Sir Edward Beatty, Chairman & President; Mr. P. A. Clews, European Manager, Canadian National Railways; Mr. T. W. Jacobs, representing Mr. Dan Willard, President, Baltimore & Ohio Railroad; Lieut.-Colonel R. D. Gwyther, representing the officers, Engineer & Railway Staff Corps, R.E.; Mr. C. E. R. Sherrington, Secretary, Railway Research Service; Mr. Stanley Adams, Chairman, and Mr. E. Huskisson, Managing Director, Thomas Cook & Son Ltd.; Lord McGowan, Chairman, Dr. W. D. Coates, Director, and Mr. E. N. Wise, Assistant Secretary, Imperial Chemical Industries Limited; Mr. Frank Pick, Mr. A. Winter Gray; Mr. J. A. Kay, Editor, THE RAILWAY GAZETTE.

OTHER SERVICES

Tribute to the sterling qualities of Lord Stamp was paid by the Rev. R. Cowan, at the memorial service held at Queens Road Methodist Church, Watford, which was attended by a large number of the headquarters' staff, who travelled in a fleet of special buses. The service, as Lord Stamp would have wished, was of a simple character. It began with the singing of the well-known hymn "O! Love that wilt not let me go," and concluded with the appropriate note of "Fight the Good Fight." In his short address, the Rev. Mr. Cowan emphasised Lord Stamp's outstanding qualifications as an economist and a man of big business. The Organist was Mr. Wallis Bandey. Among those attending were :—

Messrs. G. L. Darbyshire (Chief Officer for Labour & Establishment); S. J. Symes (Chief Stores Superintendent); T. E. Argile (Chief Commercial Manager); Capt. J. W. Harris (Marine Superintendent), and A. J. Pearson (Assistant to Vice-President).

Memorial services were also held at Manchester, Crewe, Derby, and Glasgow and were attended by all grades of the L.M.S.R. staff.

Sir Ernest J. H. Lemon, Kt., O.B.E., Commercial & Operating Vice-President, London Midland & Scottish Railway, has been appointed a Director of Carter Paterson & Co. Ltd., in place of the late Lord Stamp.

At a meeting of the Irish & English Traffic Conference held in London on April 16, the retiring Chairman, Mr. H. B. Webster, of the L.M.S.R. was unanimously re-elected for 1941. Mr. Webster has presided over the meetings of this conference since he was first elected in 1925. Mr. W. Kelman, who has represented the L.M.S.R. at the meetings of the conference since 1927, retired from service on September 30, 1940, and as a token of the esteem in which he was held and an expression of gratitude for the able assistance he had rendered to the conference, Mr. Kelman was presented with a draft on the Bank of Ireland on behalf of all members.

Staff & Labour Matters

Railway Wages

The claims of the three railway trade unions, the National Union of Railwaymen, the Associated Society of Locomotive Engineers & Firemen, and the Railway Clerks' Association, for an increase in the special war advance payable to railway staff, have been referred to the Railway Staff National Tribunal, and the hearing will begin on Tuesday next, May 6.

Awards for Gallantry

The Medal of the Civil Division of the Order of the British Empire has been awarded to Ernest John Gilbert, Permanent Way Inspector (Railways), London Passenger Transport Board. Inspector Gilbert has, on many occasions, displayed exceptional resource and courage during the execution of his duties. When an unexploded time bomb fell on railway property, Gilbert's prompt action prevented loss of life and much damage.

L.P.T.B. Busmen's Wages

As the result of an arbitration award, the present war wage payable to staff employed on the London Transport Central Buses, trams, trolleybuses, and Country Services is to be increased, as from the beginning of the first pay period after April 16 as follows :—

1. A further war wage of 4s. a week to all male employees concerned of 21 years of age and over.
(2) Women employees substituting for men shall participate in this advance in conformity with the principle laid down in Decision No. 1,755 of the Industrial Court dated April 19, 1940.
3. Male employees of 18 and under 21 years of age shall receive a further war wage of 90 per cent. of 4s. a week.
4. Male employees under 18 years of age shall receive a further war wage of 2s. a week.
5. Women employees not entitled to participate in this award in the manner provided in Industrial Court Award No. 1,755 above referred to shall receive :—
(a) If of 21 years of age or over, a further war wage of 3s. a week.
(b) If 18 but under 21 years of age, 90 per cent. of 3s. a week.
(c) If under 18 years of age 1s. 6d. a week.
6. The above award shall be calculated on the hourly rate of pay, as in the case of the previous war wage of 7s. a week.

Questions in Parliament

Rail Service to Pontywaun

Mr. Ness Edwards (Caerphilly—Lab.), on April 10, asked the Minister of Transport if he would take the necessary steps to get the Great Western Railway Company to establish a halt at the village of Pontywaun, Glamorgan, the absence of which obliged a considerable number of miners to walk two miles over the mountains to their work and caused great hardship to a community which had to do its shopping at towns some five or six miles distant.

Lt.-Colonel Moore-Brabazon wrote in reply: I am making enquiries and will communicate with my hon. friend as soon as they are complete.

TRANSPORT SERVICES AND THE WAR—88

Transport officers to assist exporters—Canal problems—Terms of control of the minor railways —Efficiency of the Southern Railway Home Guard—Continental transport services—Air lines

The Board of Trade has appointed Transport & Progressing Officers to most of the area boards situated in each of the Civil Defence areas, on which sits a Board of Trade representative one of whose main duties is to assist exporters to overcome difficulties encountered in the course of their business. Transport has offered particular difficulty and it is for this reason that Transport & Progressing Officers have been appointed to assist the Board of Trade representative. Contact may be established with these officers at the office of the respective area boards.

Smaller Parcels by Passenger Trains

The British railways are to conduct a campaign drawing attention to the desirability of sending parcels and packages, including luggage, by passenger trains in more easily manageable sizes, owing to the increasing numbers of women who are taking the places of men called to the Colours. Even in the case of urgent machinery, perishable foodstuffs, etc., every effort should be made to keep the weight of each package below 112 lb.

Rail Vouchers for Wives of R.A.F. Personnel Overseas

To avoid delay and disappointment, wives of R.A.F. officers serving overseas who require concession vouchers for rail travel should make application direct to the Under Secretary of State, P2, Air Ministry, W.C.1. Wives of airmen should apply to the Air Officer I/C Records, R.A.F. Station, Ruislip. Applications should be made in good time and should give details of the proposed journey and the number of children (if any) travelling.

Canal Chairman on Transport Problems

At the annual meeting of the Grand Union Canal Company on April 24, Mr. John Miller, the Chairman, expressed his views as to the best means of co-ordinating transport. He said that before the war competition between rail, road, canals, and coastwise shipping had created such an impasse that no form of transport was receiving a fair reward, and enormous amounts of capital invested in these industries could never hope for even a moderate return. That state of affairs could be obviated by a system of co-ordination of all transport, and rate structures should be built up and differentials agreed in favour of the slower routes or methods, such as canals and coastwise shipping. He had always held the view that railways should cease being owners of or even interested in canals, for how could the canal industry expect railways to develop their waterways on modern lines? It was against their interest to do so. Railway-owned or controlled canals should be transferred to canal undertakings, and, on similar lines to the railway amalgamation, four canal groups should be formed and given the necessary Government assistance to enable the transfers to take effect. The very heart of the canal industry from a traffic standpoint was in the Midlands, and real development could not take place until the railways ceased to be concerned with canals.

Birmingham as a port was no dream, and he hoped that, when the war was over and when the problem of finding employment for men had to be dealt with, the Government would realise how far behind this country was in the development of inland water transport in comparison with Germany, Belgium, and France, and that serious steps would be taken to remedy this. The cost of transport of raw materials was too high if this country had to compete in the world's markets. Nationalisation of all transport was not the answer to this country's transport problems, for that would mean a greater burden on the country. He doubted very much if efficiency would be maintained and, as invariably happened, all operating costs would steadily increase year by year. It would be a national tragedy if, through Government legislation, individualism in industry were made still more difficult.

Grants for Training Canal Boatmen

The training of canal boatmen for the purpose of bringing back into service boats now lying idle is to be officially encouraged by the offer of grants payable to the carrying companies. Announcing the offer, in a letter to all canal carriers, the Minister of Transport, Lt.-Colonel J. T. C. Moore-Brabazon, states that the grants will be made towards the additional costs arising from the employment of inexpert labour during the period of training by reason, for example, of slower working and greater liability to damage. Grants will be at the rate of £10 for each man trained and will be payable on the completion of the training period, provided the Minister is satisfied that, as a result of training more men, the company has made a net addition to the number of boats in service. There is a further condition that employment shall continue for a year after training. To qualify for grant, carriers are asked to notify the Ministry of their desire to participate in the scheme, stating the number of boatmen now employed and the number of boats in use, how many men they expect to train, and the net addition they hope to make thereby to the boats in service.

Minor Railway Control Terms

The annual report for 1940 of the directors of the North Devon & Cornwall Junction Light Railway Company states that the terms on which the company has agreed to be included in the financial arrangements arising out of the control of the undertaking by the Minister of Transport entitle it to a fixed annual net revenue of £6,614. This is the average of the net revenue for the years 1935, 1936, and 1937. This arrangement will in due course be embodied in an agreement between the railway companies and the Government. The Southern Railway Company has worked the line during the past year under the terms of the agreement of April 7, 1922. The net revenue for the year 1940 is £6,614, and after payment of interest on £130,000 5 per cent. debenture stock, and an adjustment in respect of income tax there is a balance of £857 carried forward to next year's accounts.

As was shown in THE RAILWAY GAZETTE of March 28, the Southport & Cheshire Lines Extension Railway is to receive under the control scheme the average net revenue of the three years 1935, 1936, 1937 (inclusive of bank and other interest) and for 1940 it was estimated that the amount to be received was £7,702. In the case of another of the minor railways—the Mersey—for which the terms of control have become known, the guaranteed net revenue is £100,015, which is equal to the net revenue of the company for the twelve months to June 30, 1939. The Mersey Railway Company is also to participate, to the extent of ¼ per cent., in the pool with the major lines.

G.W.R. Employee Parcels to Services Colleagues

About 20,000 parcels of comforts have been sent by Great Western Railway employees, who regularly subscribe to a fund to supply them to their colleagues serving with His Majesty's Forces. The comforts, which are despatched by hundreds of volunteers from 24 packing centres at principal parts of the company's system, range from pullovers and socks knitted by members of the staff to packs of cards and mouth-organs. Already there have been sent some 200,000

cigarettes, 40,000 safety razor blades, 21,000 packets of chewing gum, 15,000 handkerchiefs, 10,000 books, and 8,000 sticks of shaving soap. So as to maintain a personal link between the Serviceman and his colleagues, the parcels are made up to suit the recipient's individual taste, and are sent in the names of his colleagues at the station or depot where he worked before joining up. All acknowledgments are sent to the stations and depots for local display. Contact is made as soon as possible with wounded G.W.R. men in hospital and any special comforts which they may require are sent to them. Parcels are also sent periodically, through their next of kin, to men who are prisoners of war.

L.N.E.R. Staff War Efforts

Over 17,000 members of the L.N.E.R. staff are now serving in H.M. Forces and a further 27,000 have joined the Home Guard. In addition, members of the staff have formed 1,700 National Savings Groups throughout the system, and are digging for victory on more than 1,100 extra plots that have been put under cultivation to swell the large acreage of lineside land already developed. The number of women employed in men's jobs on the L.N.E.R. has now reached 4,000.

S.R. Home Guard Efficiency Competition

The Southern Railway Home Guard held the final of its Inter-Battalion Efficiency Competition on April 25 at a country district " somewhere in Surrey " before a large gathering, which included the General Manager, Mr. E. J. Missenden, the Chief Officers of the Southern Railway, and military guests. An inspection for general turn-out and smartness was followed by a route march, the feature of which was that at an unspecified point a board was displayed bearing the words " Aircraft Overhead " and about a 100 yd. further on another board reading " Aircraft Passed." The teams were required to take certain action on seeing these boards on the assumption that the aircraft were hostile and aggressive, and points were awarded accordingly. The competition also included rifle shooting. Range discipline and arms drill were other features, and the team leaders were specially tested for map setting, range card preparation, giving fire orders, and recognition of targets.

The whole competition was carried out with keenness and enthusiasm and the judges had a difficult task in awarding points, but eventually it was found that one team was adjudged the winner.

At the parade which followed the competition, under the command of Major Lithgow, the entire Company was inspected by Brigadier Currie, accompanied by Colonel Eric Gore-Browne, D.S.O., A.D.C., T.D., Deputy Chairman, Southern Railway. The S.R. Home Guard Efficiency Shield was then presented to the Company Commander, Captain Oxborrow, by Colonel Gore-Browne.

After the presentation of the trophy, Colonel Eric Gore-Browne, addressing the Parade, said he was present at a meeting at the War Office when it was first proposed to form the English Home Guard and when estimating what the strength might be a certain figure was given. He was pleased to say the response to the appeal for volunteers was wonderful, and today the strength of the H.G. was ten times the figure originally estimated. He was very much impressed and proud at the way the Southern H.G. had performed that day, and he added, " If Hitler ever comes to England, and all the Home Guards are as efficient as the S.R. contingent, then all I can say is, God help Hitler."

Brigadier The Viscount Bridgeman, D.S.O., M.C., Deputy Director-General of the Home Guard, also addressed the officers and men. He said " I have been very much impressed and heartened by what I have seen today. I think it is quite one of the best turn-outs I have ever seen, not because you have been engaged in a competition, but because you have efficiently performed the things that would be really wanted when the Hun comes over here. The Home Guard has been in existence for 11 months, and has already played a great part in stopping an invasion of this country so far. I am glad to say the Home Guard is now better trained and better armed." He paid tribute to the shooting, skill at arms and general eye for country he had seen that day, and said the spirit of the Southern Railway was undoubtedly reflected in its H.G. At the march past which followed, the salute was taken by Brigadier Currie.

During the afternoon an interesting interlude included a sweepstake among well-known S.R. officials in a shooting competition. Although the high wind made conditions for good shooting rather difficult, some excellent scores were returned. The winner was Colonel Prescott (Chief of Police) and Mr. G. Ellson (Chief Engineer) was second.

While not otherwise engaged in the competition, the Home Guard members saw films shown in the S.R. Cinema Coach. One dealt with cover and camouflage. A second film bore the title " Name, Rank, and Number." In it it was made known that when a prisoner-of-war is captured all the information he is bound to give to his captors is his name, rank, and number. A third film showed illustrations of German tanks from the light tanks to the heavier ones which caused so much confusion in France and Belgium a year ago. Technical descriptions of these vehicles were given and diagrams showed their most vulnerable parts.

Air Raids and Signalling

Signalling and train working have been carried on with remarkable efficiency amid the worst air raid troubles, the self-reliance and initiative of the signalmen not having been found wanting. We wonder how the enemy has fared in this respect, with his cumbersome control methods supervised by a superior station official and, to us, needless multiplicity of signal boxes. Working with point indicators and practically no shunt signals, as we know them, must occasion considerable difficulties in the blackout, especially if the lighting of the point indicators has had to be reduced. Certainly with it extinguished we do not know how the Germans could effect shunting at all. In the last war the large consumption of oil by the numerous point indicators was certainly found to cause anxiety. There are, however, far fewer running signal lights than with our arrangements, and some of those are normally masked.

Northern Ireland Defence Areas

Nine districts covering the whole of Northern Ireland have been declared defence areas by an order made under the Defence Regulations by the Northern Ireland Minister of Public Security. One of the nine areas is the city of Belfast.

Enemy Air Attack on Northern Ireland

On the night of April 15/16 a heavy air raid took place on Northern Ireland and Belfast bore the brunt of the attack. Mr. J. C. MacDermott, K.C., Minister of Public Security, on April 19 revealed that the prompt response of the Dublin, Dundalk, Drogheda, and other fire brigades in Eire had rendered valuable assistance. On the same day Mr. de Valera expressed his sympathy with those who had suffered from the bombardment and proffered whatever help might be possible. Some 6,000 refugees were received into Eire, but about 4,000 of these either went to friends or returned to the North within a few days.

" War Train " Tours South Africa

A " war train," intended to show the country something of the wide range of war supplies manufactured locally and to encourage the recruitment of trainees for technical war work, is touring the Union of South Africa. Seven thousand men have been recruited for training and many are already working in key industries. The train staff also makes a survey of the trained labour available in the small towns and the country districts. The train is the successor to the motor " commando on wheels " which extensively toured the Union last November, showing armoured fighting vehicles and mechanised equipment now in use in Abyssinia and Italian Somaliland. The train, which left Johannesburg on March 24, will travel 4,000 miles, visiting Durban, Port Elizabeth, East London, Cape Town, Kimberley, Bloemfontein, and many smaller centres.

The train includes an armoured section. On display is an armoured car, a howitzer with porte, and an ammunition trailer and field mortars made in South African factories by

South African labour from South African material. There are also display vans demonstrating the extensive range of South Africa's war supplies, from bombs to bayonets. Accompanying the train are six trainees ranging from 17 to 38 years who were formerly farmers, a postman, and a carpenter, and who are operating their machines in a special demonstration truck.

Canadian National Railways Staff War Effort

Canadian National Railways employees have organised a scheme under which they pledge themselves to the regular purchase of War Savings Certificates to the extent of $2,138,070 annually.

Alsace-Lorraine and Luxembourg Railways

As we have previously recorded in these columns, the Alsace and Lorraine railways were brought under Reichsbahn administration immediately after the German-French armistice ; the Guillaume—Luxembourg lines on September 1; and the Prince Henri lines on December 1, 1940. The Alsace lines were incorporated in the Karlsruhe *Direktion*, and the Lorraine lines first in the Mainz *Direktion*, but upon the return of the Saarbrücken *Direktion* from Coblenz (whither it had been evacuated on the outbreak of hostilities) to its own home town on July 20, 1940, the Lorraine lines were transferred to Saarbrücken, which eventually also took over the Luxembourg systems. Further unification on the Reichsbahn model has now taken place. Operating, traffic, locomotive, and engineering divisions have now been organised in both *Direktionen* for the annexed systems. Saarbrücken has established seven operating divisions, namely, Luxembourg 1 (for the Guillaume lines), Luxembourg 2 (for the Prince Henri system), Thionville, Metz 1, Metz 2, Sarrebourg, and Sarregemund (for the Lorraine lines); and four traffic and locomotive divisions, at Luxembourg, Thionville, Metz, and Sarregemund. For the Alsace system, Karlsruhe has established four operating divisions at Hagenau, Strasbourg, Colmar, and Mulhouse; and locomotive, traffic, and engineering divisions at Strasbourg and Mulhouse.

Russian-German Transit Traffic

Mr. Hugh Dalton, the Minister of Economic Warfare, in the House of Commons on April 9 stated, in answer to a Question, that his information showed that very little if any oil had reached Germany from the U.S.S.R. since March 1. He added that it would, however, be premature to draw the conclusion that this traffic had been stopped. In THE RAILWAY GAZETTE of April 11, at page 432, a statement, attributed to a "a high diplomatic source in Belgrade," was reported to the effect that Russia ceased sending oil to Germany on March 1 when the German army marched into Bulgaria.

It is reported that rigid restrictions on railway passenger traffic have been imposed by the German authorities in occupied Poland, and that only Germans, Ukranians, and Polish police officials are allowed to travel by train without special permit. It has been suggested that one reason for these restrictions is that trains proceeding east towards the German-Soviet border are required to carry men, munitions, and materials to the new East Wall.

It is reported from Moscow that on April 29 a Decree was issued forbidding the transit of any war material through the Soviet Union. The list of war materials attached to the decree includes munitions, aircraft parts, and accessories, machine tools for making munitions, explosives, and strong poisons. The transit of other goods through the Soviet Union is strictly regulated, and is permitted only by virtue of a trade agreement or of a special authorisation.

Transport and Migration in Poland and Neighbouring Territories

To stop illicit trade in rationed foodstuffs, the Polish railways are limiting the issue of tickets to travellers to distances not exceeding 30 miles.

The arrival at the German frontier station of Eydtkau on February 3 of a train conveying 527 farmers of German origin, collected from around Schanzen, near Kovno, the former capital of Lithuania, marked the beginning of the last stage of the transfer to the Reich of German minorities from territories now incorporated in Soviet Russia and from parts of the Balkans. Altogether, 43,000 persons, many of whose families had been settled in Lithuania for several generations, decided to accept transfer to the Reich in accordance with the treaty between Germany and Soviet Russia signed on January 10. Another 12,000 Baltic Germans from Esthonia and Latvia, three-quarters of whom are townsfolk who were unable to make up their minds to join former "treks," were given a final chance to leave Russian territory at the beginning of February, but the results are not known.

The German authorities state that last year the transfers included 63,000 from Latvia, 12,000 from Esthonia, 130,000 from Eastern Poland and the provinces of Volhynia and Galicia, 45,000 from Northern Bukovina, 30,000 from the Polish provinces of Chomin and Lublin, 90,000 from Bessarabia, and 15,000 from the Dobruja, aggregating, with smaller lots, about 500,000 persons. The intention is to settle the transferred Germans in that part of Poland under Reich domination.

A very large migration eastwards out of the Ruhr, the Rhineland, and Central Germany is being organised, partly to make German industry less vulnerable to air bombardment and partly to reinforce the German element now being settled in Polish territory.

European Air Lines

An air line is now stated to be worked between Lisbon, Oporto, and Braga, all in Portugal.

The air service between Lisbon and Tangiers is maintained by Aero Portuguesa Limitada.

A new air line between Oslo and Stockholm was begun recently by the Deutsche Luft Hansa. This is the first direct service between Oslo and Stockholm since the German occupation of Norway. We recorded at page 128 of our January 31 issue that the Swedish Government had granted permission for German commercial aircraft to fly over Sweden, thus permitting this service to be inaugurated.

Recent newspaper advertisement of Jersey Airways Limited

Despite the war, the Swedish Air Lines Company (A.B. Aerotransport) is maintaining most of its air routes abroad. The report of the company for 1940 shows that the following services are still being operated regularly: Stockholm—Riga—Moscow; Stockholm—Berlin; Malmö—Copenhagen—Berlin; Stockholm—Helsinki; and Stockholm—Mariehamn—Abo. During the year the company flew about 1·7 million km. (1·05 million miles), compared with 2·9 million km. (1·8 million miles) in 1939. Passengers carried decreased from 60,000 to 32,000; luggage amounted to 501,000 kg., compared with 611,000 kg. in 1939; and freight amounted to 400,000 kg., compared with 511,000 kg.

In view of recent developments in the Balkans, it is of interest to record that the Jugoslav company Aeroput began as recently as July 18, 1940, to participate for the first time in the Jugoslav-Hungarian co-operative air service between Belgrade and Budapest. This new phase of the service (which hitherto had been operated exclusively by Hungarian planes) was inaugurated by an American-built plane owned by the Aeroput.

British Transatlantic Air Line

Preparations are being made at Foynes for the resumption in the first week of June of the transatlantic air service between Ireland and America. The service will be conducted by American Airways Limited.

RAILWAY LAW FOR THE QUARTER

Loss by Delays

In a contract of carriage the carriers are liable for the damages "which might be reasonably expected to flow from non-fulfilment of the contract." Beyond this the carriers are not liable whether their failure consists in non-fulfilment, or in delay in carrying out their obligations. Where, however, the carrier has notice that there are exceptional features in the contract and that special loss will follow in case of delay he runs the risk of being hit for this special damage. Thus in *Simpson* v. *London & North Western Railway Company*, 1 Q.B.D. 274, the plaintiff sent samples to be carried to a show ground at Newcastle and they arrived too late owing to improper delay on the railway. The Court held that the special purpose was known to the company and that it was liable for the special damage which resulted.

The distinction must be observed between cases which concern carriage by sea and cases of carriage by land only. For in the former case the goods are often sold when they are on the high seas, and again there is often no sale on the arrival of goods, so that one cannot be certain whether the plaintiff would have suffered had the goods arrived in time. Cases of carriage by sea cannot therefore govern cases of carriage by land where the question is one of damages for delay.

So too in *Schulze* v. *Great Eastern Railway Company* (19 Q.B.D. 30), the plaintiffs were able to recover the special value of samples which they had sent by railway with express notice that delay would render them useless.

But merely to mark the goods "Traveller's goods: deliver immediately" has been held not to be notice of a special purpose sufficient to enable the consignors to recover the special value which the samples would have had, if delivered in time. Again, it is always open to the carriers to show that the goods were either badly packed, or were specially sensitive and that they were ignorant of this condition. Thus in *Baldwin* v. *London Chatham & Dover Railway Company* (9 Q.B.D. 582), rags were packed for transit in a damp state. The transit occupied 14 days instead of 24 hours, and the rags became heated and rotted. The company was held not to be liable as it had no notice of the condition of the rags.

Fire Watching

By the Defence Regulation 26A the Minister of Home Security can order all British subjects between 16 and 60 to be registered for part time Civil Defence duties, but those who have taken up duties under the Fire Prevention (Business Premises) Order, 1941 (No. 69), are exempt from registration under Regulation 26A. Exemption can be obtained on medical grounds or on grounds of exceptional hardship. If voluntary enrolment fails the local authority may serve an "enrolment notice" on any person registered under the Regulation and order him to carry out prescribed duties as to fire prevention for periods not exceeding 48 hours in each month.

The right to claim exemption is provided for under the Civil Defence Duties (Compulsory Enrolment) Order, 1941 (No. 70), on the grounds of medical unfitness or exceptional hardship. He should apply in the first instance to the local authority and if it refuses exemption he can appeal to the Exemption Tribunal, that is the Military Service (Hardship) Tribunal for the district. A medical certificate or other evidence in support of the application should be ready for production, if required.

Where a person ceases to reside in the prescribed area, he can apply on this ground to the local authority to be released from his duties, and he must show (1) reasonable grounds for leaving the area, and (2) that it would not be practicable for him to perform the required duties in the area. Here again an appeal will lie to the tribunal from the refusal of the local authority.

Cases have been reported in which persons have been fined by magistrates for failure to comply with notices under these regulations and it seems desirable that our readers should know what steps are necessary if exemption is applied for.

Damages for Fatal Accident

Yelland v. *Powell Duffryn Associated Collieries Limited*—"*The Times*," *February* 13.

The widows of two miners who were killed by a gas explosion in the defendant's mine brought actions under the Fatal Accident Acts, and also under the Law Reform (Miscellaneous Provisions) Act, 1934. They recovered substantial damages under the latter Act, but under the Fatal Accidents Act they recovered only £5 each. The widows appealed on the ground that this last was inadequate and urged that by the Act of 1934, s. 1, sub. s. 5, "the rights conferred by this Act for the benefit of the estate of the deceased person shall be in addition to and not in derogation of rights conferred by the Fatal Accidents Acts."

The Court of Appeal held, however, that in estimating the pecuniary loss suffered by a dependant from the death of her husband a sum recovered under the Act of 1934 must be taken into account.

The section cited above does not therefore mean that sums recovered under the other Acts are not to be taken into account in assessing damages under the Fatal Accidents Acts. It merely means that the right to recover under those Acts still exists, and it is not expunged by the Act of 1934. It is well settled that the amount recoverable under the Fatal Accidents Acts is limited to the pecuniary loss suffered by the dependants as the result of the death. So this may be considered to be the logical conclusion of that rule. Still it must be admitted that the principles upon which damages are to be assessed in these cases are very confusing.

Invitation to Alight

Hallett v. *L.N.E.R.*—*Law Jo. County Ct. Cases, October*, 1940.

On a dark night in December, 1939, the plaintiff was travelling as a passenger from Hull to Ferriby (Yorks). The train stopped so that her carriage was short of the platform. This was due to accident or miscalculation on the part of the driver. The plaintiff stepped out, and on regaining consciousness she found herself in the waiting room of the station, where a doctor was examining her. There was evidence that servants of the company shouted "stay in," and this was accepted by the County Court Judge who tried the action for damages which ensued. These "invitation to alight" cases always depend on the particular facts, but in *Cockle* v. *North Eastern Railway Company* (1872) the Court said that the question of whether there is an invitation to alight depends on whether the train has come to a final standstill, or whether it goes on immediately so as to bring the carriages up to the platform. This is not a very satisfactory rule, but no doubt it is often of assistance to the companies. In *Sharpe* v. *Southern Railway Company* (1925), 2 K.B. 311, Lord Justice Atkin suggests that there is no duty to warn passengers unless the company knows that the train is too long for the platform. In Mrs. Hallett's case, however, the County Court Judge went further and found that the company had done all it could be expected to do by way of warning. He attributed the accident to the plaintiff's negligence, and nonsuited her. He gave some useful advice to travellers at night in these times whether by road or rail. "If we travel at night," he said, "we know that it will be an adventure and that we shall be exposed to difficulties and even dangers unknown in peacetime. We have to accommodate ourselves to these conditions." It is not enough, he continued, to know that one has reached the station by the mere stopping of the train; one should look up and down the line and towards the ground.

Brazil's New Steel Works

According to the *Anglo-Brazilian Chronicle* the erection of Brazil's new large steel plant at Volta Redonda, brief details of which appeared in The Railway Gazette of February 7, is likely to result in the creation of a substantial demand for new rolling stock and material for the Central of Brazil Railway. It is estimated that, in order to meet the requirements of the steel plant, the railway will have to purchase about 500 wagons for the transport of minerals and coal, and also undertake improvements to its permanent way, increase the number of its locomotives, renew rails at certain points in Carioca, construct about 30 signal boxes, and enlarge the platforms in certain stations.

NOTES AND NEWS

Railway Accident in Uganda.—A mail train was derailed on April 23 near Kampala, Uganda, with the result that 20 persons are reported to have been killed and many injured.

Madras Railway Annuities.—In accordance with the provisions of the Madras Railway Annuities Act, 1908, it is notified that a total sum of £5,612,054 is invested for the purpose of providing a sinking fund in respect of Annuities Class "B."

Diesel Shunting Locomotives.—An admirable paper on this subject was read by Mr. C. E. Fairburn, Deputy Chief Mechanical Engineer and Electrical Engineer, L.M.S.R., before the Institution of Locomotive Engineers on April 30. Comments on the salient points of Mr. Fairburn's paper will be found on page 491 of this issue, and an abstract is published in the May issue of THE RAILWAY GAZETTE *Diesel Railway Traction Supplement.*

Closing of Flushdyke Station.—The L.N.E.R. announces that on and from Monday next, May 5, Flushdyke station will be closed for passenger train traffic. Traffic conveyed by passenger train will be dealt with at Ossett, from which station cartage services will operate in the Flushdyke district. Goods train traffic requiring L.N.E.R. collection or delivery services will be dealt with at Ossett station as now. Other merchandise traffic will continue to be dealt with at Flushdyke.

L.N.E.R. Extension of Time Application.—The London & North Eastern Railway Company is applying to the Minister of Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, extending by three years (i) the time limited by section 45 of the L.N.E.R. (London Transport) Act, 1936, for the exercise of the powers conferred upon it for the completion of Railways Nos. 1 and 2 at Finsbury Park authorised by the L.N.E.R. Act, 1924 (section 5); and (ii) (*a*) the time limited by Section 22 of the L.N.E.R. Act, 1938, for the compulsory purchase of lands required for widenings Nos. 1 and 3 authorised by Section 5 of the 1938 Act; and (*b*) for the compulsory purchase of lands authorised to be acquired by Section 17 of the 1938 Act near Hainault station, and in the rural districts of Rugby, Lutterworth, and Basford.

Derailment on the Southern Railway.—At 6.31 p.m. on April 20 the engine, tender, and five leading vehicles of the 6.15 p.m. Charing Cross to Ramsgate train *via* Dover were derailed between New Cross and St. John's. The fireman was killed and the driver injured, but of the 250 passengers only a few sustained slight injuries.

The Belvoir Castle Railway.—A correspondent informs us that the Belvoir Castle Railway is being dismantled. The rails, the ironwork of the wagons, and the wharf crane, have already been disposed of for scrap metal. This two-mile private railway was built in 1815 by the Butterley Ironworks Company and opened in two portions in June and September of that year. It was used regularly until May, 1918, since when it has lain derelict.

Canadian Railway Club Gift.—The Canadian Railway Club, with headquarters at Montreal, has a membership of persons interested in railway service and has been in existence for over forty years. At a meeting of the executive committee of the club on March 14, it was decided to send a war donation of £20 to the funds of the Railway Benevolent Institution of the United Kingdom as an expression of the club's appreciation of the great work of the railwaymen of the United Kingdom during the present war.

Fire in L.N.E.R. Express.—The coach next to the rear brake van of the 12.50 p.m. King's Cross to Newcastle express caught fire on April 28 when the train was travelling between Hougham and Claypole. The train was stopped and efforts made to extinguish the fire, but the coach in front and the brake van behind became involved before the train could be uncoupled and cleared of the blazing vehicle. The coach in which the fire started was reserved for 64 Ampleforth College boys, and several of them jumped from the train before it could be brought to a standstill. Six boys were killed and seven badly injured. The main line was obstructed as a result of this mishap from 3.35 p.m. to 7.1 p.m., and trains were diverted over alternative routes.

Irish Traffic Returns

IRELAND		Totals for 15th Week			Totals to Date		
		1941	1940	Inc. or Dec.	1941	1940	Inc. or Dec.
		£	£	£	£	£	£
Belfast & C.D. (80 miles)	pass.			No returns to hand			
	goods						
	total						
Great Northern (543 miles)	pass.	28,400	10,350	+ 18,050	204,300	146,150	+ 58,150
	goods	15,050	13,000	+ 2,050	245,100	174,200	+ 70,900
	total	43,450	23,350	+ 20,100	449,400	320,350	+ 129,050
Great Southern (2,049 miles)	pass.	45,515	28,085	+ 17,430	522,945	440,825	+ 82,120
	goods	44,114	50,755	− 6,641	750,942	658,059	+ 92,883
	total	89,629	78,840	+ 10,789	1,273,887	1,098,884	+ 175,003
L.M.S.R. (N.C.C.) (247 miles)	pass.			No returns to hand			
	goods						
	total						

Easter Monday, 1941

British and Irish Railway Stocks and Shares

Stocks	Highest 1940	Lowest 1940	Prices April 29, 1941	Rise/Fall
G.W.R.				
Cons. Ord.	52	22½	32	+1
5% Con. Pref. ...	103½	58	92½	—
5% Red. Pref. (1950)	105½	88	103	—
4% Deb.	107½	90½	110½	+½
4½% Deb.	108½	96½	113	—
4½% Deb.	114½	96	115½	—
5% Deb.	124	106	130	—
2½% Deb.	66½	57	66	—
5% Rt. Charge ...	117½	97	126½	—
5% Cons. Guar. ...	117	90½	125	+½
L.M.S.R.				
Ord.	24⅞	9	12	+⅛
4% Pref. (1923) ...	60½	21⅜	36	−⅜
4% Pref.	70⅜	35	53	−⅜
5% Red. Pref. (1955)	94½	60	84½	—
4% Deb.	101⅛	81	102⅛	−⅛
5% Red. Deb. (1952)	109½	102	108	—
4% Guar.	93⅛	65	93	+½
L.N.E.R.				
5% Pref. Ord. ...	8⅜	1½	2⅜	+⅛
Def. Ord.	4⅜	1½	1½	—
4% First Pref. ...	60	20	34	−½
4% Second Pref. ...	22⅜	6½	11⅜	−¼
5% Red. Pref. (1955)	80	34½	60½	—
4% First Guar. ...	86½	56	81½	−1
4% Second Guar. ...	77½	37	66½	—
3% Deb.	73½	54½	75	—
4% Deb.	97⅜	74	99½	—
5% Red. Deb. (1947)	107	96½	104	—
4½% Sinking Fund Red. Deb.	104	98	102½	—
SOUTHERN				
Pref. Ord.	79	34	46	−1½
Def. Ord.	22½	7	9⅜	−⅜
5% Pref.	104½	58¾	88½	—
5% Red. Pref (1964)	105	85	100½	—
5% Guar. Pref. ...	116¾	90	125½	+1½
5% Red. Guar. Pref. (1957)	114⅞	94	113½	—
4% Deb.	106¾	84½	107½	—
5% Deb.	122½	100	128½	—
4% Red. Deb. (1962–67)	106	96½	106	—
4% Red. Deb. (1970–80)	106¾	93	106	—
FORTH BRIDGE				
4% Deb.	95½	87	93½	—
4% Guar.	93½	81½	91½	—
L.P.T.B.				
4½% "A"	116	103	118¾	−¾
5% "A"	121½	107	125½	+1
4½% "T.F.A." ...	105½	101	102½	—
5% "B"	116	102	112¾	−¾
"C"	65½	24	30	−1
MERSEY				
Ord.	26	18¾	21½	—
4% Perp. Deb. ...	92½	86¾	92½	—
3% Perp. Deb. ...	68	63	67½	—
3% Perp. Pref. ...	57	50½	53½	—
IRELAND				
BELFAST & C.D.				
Ord.	4	3	4	—
G. NORTHERN				
Ord.	4¼	1½	4⅛	—
G. SOUTHERN				
Ord.	12½	4	7	—
Pref.	15½	6	8	—
Guar.	36	15	19¾	—
Deb.	55½	40	48	−3

Railway and Other Reports

Madras & Southern Mahratta Railway Co. Ltd.—An interim dividend is announced of 2¾ per cent., made up of 1¾ per cent. guaranteed interest, and 1 per cent. from stockholders' revenue account, the same as a year ago.

Broom & Wade Limited — Interim dividend 7½ per cent. (same).

Laycock Holdings Limited.—Interim dividend 3¾ per cent. (2¼d. on each 5s. unit), the same as a year ago.

Coventry Machine Tool Works Limited.—It is announced by the directors that the question of a dividend has been left in abeyance.

Imperial Chemical Industries Limited.—Net income in the year 1940 amounted to £6,418,533, against £7,313,485. The directors recommend a final dividend of 5 per cent. actual, making with the interim, 8 per cent. for the year 1940 (the same), less tax at standard rate for 1941-42, reduced by relief in respect of Dominion tax at the rate of 3d. in the £ (the same).

Skefko Ball Bearing Co. Ltd.—This company is the British unit of the organisation controlled by the Swedish Ball Bearing Company. Net profit for the year 1940 amounted to £180,696, against £253,396. A final dividend is recommended of 10 5/16 per cent., tax free, making 17½ per cent., tax free, for the year, against 20 per cent., tax free, for the year 1939.

Churchill Machine Tool Co. Ltd.—The report for 1940 shows that the net profit, after providing for taxation, depreciation, and reserves, was £65,604, against £85,507. The final dividend on ordinary capital is 15 per cent., making 30 per cent. for the year, the same, and the amount to be carried forward is £50,658, against £34,464 brought in. Turnover during 1940 was considerably larger than in 1939, gross profit somewhat larger, and net profit some 20 per cent. down.

William Beardmore & Co. Ltd.—Trading profit for 1940, after charging depreciation and making provision for taxation, was £360,499, a decrease of £134,130. Net profit amounted to £328,679, against £465,063, and £166,147 (£95,135) was brought in. War contingencies reserve receives £200,000, as against £300,000 to general reserve in 1939, and the final dividend of 7 per cent. (already announced) again makes 10 per cent. for the year, leaving £215,145 to be carried forward.

Craven Bros. (Manchester) Limited.—Trading profit for 1940 was £182,620 (against £187,621). Deductions for interest charges, war risks insurance, A.R.P., depreciation reserve, provision for taxation (£80,000 against £56,375) bring the net profit to £73,012 (against £106,329.) The final dividend is 10 per cent. (against 15 per cent.), making 14 per cent. for the year, compared with 22½ per cent. for each of the two previous years. It is proposed to carry forward £126,359, against £97,147 brought in.

Superheater Co. Ltd.—Trading profit for the year 1940, after depreciation, was £108,652, against £126,046 for the 14 months ended December 31, 1940. Balance available for dividends, after adding £17,463 brought in, providing for directors' fees, and making allocations to preference redemption and reserve, to investment reserve, war contingencies, off patent rights (£2,729), and to taxation (£58,000), is £47,303. Preference dividend takes £9,354, interim ordinary dividend (12½ per cent.) £9,434, and final ordinary dividend (20 per cent.) £13,125, leaving £15,390 to be carried forward.

Australasian Railway Statistics

The annual report on the working of the Queensland Government Railways for the year ended June 30, 1940, contains a table in which are summarised the principal operating figures and statistics for each of the Government railway systems of the Australian States and of New Zealand. This table is so comprehensive and informative that we are reproducing it in full.

COMPARATIVE ANALYSIS OF RAILWAY ACCOUNTS IN THE STATES OF QUEENSLAND (EXCLUDING UNIFORM GAUGE RAILWAY), NEW SOUTH WALES, VICTORIA, SOUTH AUSTRALIA, WESTERN AUSTRALIA, AND THE DOMINION OF NEW ZEALAND (FROM THE LATEST OFFICIAL RECORDS)

Particulars	Queensland Year ended June 30, 1940	New South Wales Year ended June 30, 1940	Victoria Year ended June 30, 1940	South Australia Year ended June 30, 1940	Western Australia Year ended June 30, 1940	New Zealand Year ended March 31, 1940
Area in square miles	670,500	309,432	87,884	380,070	975,920	104,015
Population	1,021,300	2,783,043	1,896,934	597,000	466,500	1,633,447
Miles open	*6.497	6,141¼	4,759	2,557⅜	4,381	3,390
Gauge	3 ft. 6 in. and 2 ft. 0 in.	4 ft. 8½ in.	5 ft. 3 in. and 2 ft. 6 in.	5 ft. 3 in. and 3 ft. 6 in.	3 ft. 6 in.	3 ft. 6 in.
Capital (opened lines)	£39,397,355	£149,203,908	†£52,106,605	£28,752,864	£26,736,299	£63,059,188
Average cost per mile	£6,063	£24,305	£10,951	£11,243	£6,103	£18,602
Population per mile of railway	157	453	399	233	106	482
Cost per head of population	£38 11s. 6d.	£53 12s. 3d.	£27 9s. 5d.	£48 3s. 3d.	£57 6s. 3d.	£38 12s. 1d.
Gross earnings	£7,936,986	£19,954,851	£9,861,592	£3,183,562	3,555,982	£10,199,070
Working expenses	£6,254,858	£14,646,934	£8,058,409	£2,830,081	£2,828,329	£9,010,039
Profit on working	£1,682,128	£5,307,917	£1,803,183	£353,481	£727,653	£1,189,031
Percentage of net earnings to capital (opened lines)	£4 5s. 4¾d.	£3 11s. 2d.	£3 9s. 2d.	£0 15s. 0d.	£2 14s. 8d.	£1 19s. 3d.
Percentage of working expenses to earnings—						
Maintenance	20·03	17·03	13·66	15·72	17·87	19·02
Locomotive	35·33	20·69	29·92	43·49	36·73	43·23
Traffic	22·10	31·01	27·03	24·91	20·71	25·69
General	1·35	4·67	11·11	8·55	4·23	2·72
Total	78·81	73·40	81·72	92·67	79·54	90·66
Earnings per average mile open	£1,221	£3,262	£2,072	£1,245	£812	£2,599
Working expenses per average mile open—	£	£	£	£	£	£
Maintenance	244·64	555·32	283·00	195·76	145·05	494·28
Locomotive	431·49	1,011·49	619·99	541·27	298·25	1,123·59
Traffic	269·95	674·97	560·18	310·13	168·10	667·73
General	16·53	152·31	230·13	106·40	34·34	70·71
Total	962·61	2,394·09	1,693·30	1,153·56	645·74	2,356·31
Earnings per train mile	s. d. 11 3¼	s. d. 13 6½	s. d. 11 7¼	s. d. 10 9	s. d. 11 4¼	s. d. 13 1
Working expenses per train mile—						
Maintenance	2 3	2 3¾	1 7	1 8½	2 0½	2 6
Locomotive	3 11¾	4 2½	3 5¾	4 8	4 2½	5 8
Traffic	2 6	2 9½	3 1½	2 8½	2 4½	3 4½
General	0 1¾	0 7½	1 3½	0 11	0 5¾	0 4
Total	8 10½	9 11½	9 5¾	9 11½	9 0½	11 10½
Earnings per engine	£10,471	£15,913	£13,812	£9,647	£8,407	£13,974
Earnings per carriage (coaching)	£1,406	£2,530	£2,571	£1,269	£1,630	£1,360
Earnings per wagon (goods and live stock)	£321	£475	£233	£292	£249	£213
Earnings per head of population	£7 15s. 5d.	£7 3s. 5d.	£5 4s. 0d.	£5 6s. 8d.	£7 12s. 5d.	£6 4s. 11d.
Number of passenger journeys	24,532,228	179,066,305	144,649,075	17,641,766	10,793,396	24,454,014
Goods tonnage	4,907,775	13,812,162	5,547,022	2,510,900	2,548,628	7,077,298
Livestock tonnage	511,048	807,554	639,967	189,263	110,248	596,652
Average number of passengers per average mile of railway	3,775	29,269	30,395	6,898	2,464	7,254
Train mileage	14,090,419	29,470,821	17,007,970	5,928,416	6,262,437	13,366,798
Train miles per average mile of railway open	2,168	4,817	3,574	2,318	1,430	3,965

* Exclusive of Uniform Gauge Railway
† Capital reduced by £25,564,189. Railway (Finances Adjustment) Act, 1936

Railway Stock Market

Although sentiment on the Stock Exchange was aided by the Prime Minister's speech, there has been a further contraction in the volume of business, and on balance, movements in most securities have been small and unimportant. Confidence and general willingness to be prepared to take more than a short view were reflected by the continued absence of selling pressure, awaiting the next developments in the war situation. A good impression was created by the continued improvement in British Funds, which are expected to experience considerable reinvestment demand, partly owing to the repayment of the L.C.C. 5 per cent. stock and the forthcoming requisitioning of further American dollar securities. Having regard to the good yields obtainable, home railway prior charges are also expected to be in better demand, and this week they were inclined to respond to the firmness of Government stocks. Debentures of the main-line railways show yields ranging up to 4 per cent., and bearing in mind their high investment status, they are comparatively undervalued in price. Moreover, among the guaranteed stocks, yields extend up to close on 6 per cent., the latter return being shown by L.N.E.R. 4 per cent. second guaranteed, while as far as concerns preference stocks, L.M.S.R. 4 per cent. senior preference yields approximately 7⅜ per cent. Substantial yields are obtainable on the 1923 preference stock of this railway, while in the case of L.N.E.R. 4 per cent. first preference the yield is over 11½ per cent. An even larger yield is shown on L.N.E.R. 4 per cent. second preference, but in this case, whether the full dividend can be expected to rule during the period of the war may turn on the revision of the financial agreement with the Government. This may also, of course, have an important bearing on dividend prospects of Great Western and L.M.S.R. ordinary, as well as Southern deferred, although it continues to be assumed in many quarters that the minimum revenue guarantee will be maintained, in which case dividends not much below those which ruled last year would probably be virtually assured. Nevertheless, there is little doubt that a restraining influence on all classes of home railway stocks is exercised by the absence of news as to developments regarding revision of the financial agreement and the special war damage plan for public utility undertakings.

Great Western ordinary stock was unchanged on balance at 32, but the 5 per cent. preference was a point better at 94½; the 4 per cent. debentures remained at 110. Southern 5 per cent. preference failed to improve, and was again 88½, while the 4 per cent. debentures kept at 107½, and the preferred ordinary was no better than 46. On the other hand, L.M.S.R. ordinary made the slightly improved price of 12; the 4 per cent. debentures were again 102, and the 4 per cent. guaranteed, 93. L.N.E.R. guaranteed issues, however, moved lower, the firsts being 81½, compared with 82½ a week ago, and the seconds, 65, compared with 66½. Metropolitan Assented reacted to 46½, following an earlier improvement, and London Transport "C" reacted to 30. Argentine railway debentures were again slightly lower on balance, and were unaffected by the denial of any fresh developments as to the possibility of ultimate purchase of the railways by the Argentine authorities. News is awaited as to the outcome of the request of the railways to raise freight rates. San Paulo ordinary stock was lower, and pending publication of the results, Nitrate Railways were unchanged in price. Canadian Pacific issues moved better under the influence of the good traffics, while Grand Trunk 4 per cent. guaranteed stock was higher at 101.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1940-41	Week Ending	Traffic for Week: Total this year	Traffic for Week: Inc. or Dec. compared with 1940	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highs 1940	Prices: Lowest 1940	Prices: April 29, 1941	Prices: Yield % (See Note)
South & Central America	Antofagasta (Chili) & Bolivia	834	20.4.41	£ 17,480	— £ 3,620	16	£ 277,600	£ 312,240	— £ 34,640	Ord. Stk.	11½	3½	4	Nil
	Argentine North Eastern	753	19.4.41	ps. 143,200	— ps. 3,400	42	ps. 6,123,200	ps. 6,360,400	— ps.237,200	,,	3½	1	2	Nil
	Bolivar	174	Mar. 1941	4,340	— 30	13	11,020	11,590	— 570	6 p.c. Deb.	6½	5	6½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	8	5	5	Nil
	Buenos Ayres & Pacific	2,801	19.4.41	ps.1,710,000	+ps.155,000	42	ps.59,579,600	ps. 58,794,000	+ ps.785,000	Ord. Stk.	4½	1	2	Nil
	Buenos Aires Central	190	18.1.41	$70,400	— $20,200	29	$2,477,400	$2,994,900	— $517,500	—	—	—	—	—
	Buenos Ayres Great Southern	5,082	19.4.41	ps.2,289,000	+ ps.76,000	42	ps.92,831,000	ps.100,438,000	— ps.7,607,000	Ord. Stk.	10⅜	3	4	Nil
	Buenos Ayres Western	1,930	19.4.41	ps. 918,000	— ps.16,000	42	ps.32,092,000	ps. 33,447,000	—ps.1,355,000	,,	8⅜	2	3	Nil
	Central Argentine	3,700	19.4.41	ps.2,061,000	+ps.400,750	42	ps.66,696,250	ps. 74,642,550	— ps.7,946,300	,,	8¾	2	2¾	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	4	¼	1	Nil
	Cent. Uruguay of M. Video	972	19.4.41	25,331	+ 5,774	42	945,898	894,853	+ 51,045	Ord. Stk.	3½	½	1¾	Nil
	Costa Rica	188	Dec. 1940	18,694	— 783	26	90,913	107,851	— 16,938	Stk.	23⅛	14	15½	12⅞
	Dorada	70	Mar. 1941	12,500	+ 700	13	36,700	34,500	+ 2,200	1 Mt. Db	99	97½	98	6 1/16
	Entre Rios	810	19.4.41	ps. 201,600	+ps. 25,200	42	ps. 8,945,800	ps.10,031,900	—ps.1,086,100	Ord. Stk.	4	⅛	1½	Nil
	Great Western of Brazil	1,016	19.4.41	8,000	— 2,100	16	170,200	201,500	— 31,300	Ord. Sh.	4/-	1/-	/-	7/16	Nil
	International of Cl. Amer.	794	Feb. 1941	$457,397	— $147,435	8	$956,497	$1,170,322	— $213,825	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	9d.	9d.	½	Nil
	La Guaira & Caracas	22½	Mar. 1941	5,520	— 1,850	13	18,995	21,975	— 2,980	—	6	4	—	—
	Leopoldina	1,918	19.4.41	21,138	+ 871	16	381,030	349,591	+ 31,439	Ord. Stk.	2 3/16	¼	¼	Nil
	Mexican	483	28.2.41	ps. 386,200	—ps. 36,400	8	ps. 2,608,600	ps. 2,703,600	— ps. 95,000	,,	2/11⅛	1/8	1/8	Nil
	Midland of Uruguay	319	Feb. 1941	11,927	— 913	35	94,189	81,224	+ 12,965	—	—	—	—	—
	Nitrate	386	15.4.41	4,245	— 1,382	15	30,977	55,962	— 24,985	Ord. Sh.	2¼	1¼	2 1/16	5½
	Paraguay Central	274	19.4.41	$2,586,000	— $513,000	42	$136,112,000	$134,121,000	+ $1,991,000	Pr. Li. Stk.	41	36	30½	19 11/16
	Peruvian Corporation	1,059	Mar. 1941	61,029	— 13,709	39	577,986	606,651	— 28,665	Pref.	4	1	2	Nil
	Salvador	100	8.2.41	¢29,789	— ¢4,561	32	¢435,351	¢534,567	— ¢99,216	—	—	—	—	—
	San Paulo	153½	20.4.41	39,375	+ 6,889	16	558,375	548,698	+ 9,667	Ord. Stk.	50	23	31	8 1/16
	Taltal	160	Mar. 1941	2,630	— 375	39	25,140	23,135	+ 2,005	Ord. Sh.	15/1½	⅜	⅜	Nil
	United of Havana	1,346	19.4.41	40,295	— 1,038	42	975,082	1,018,634	— 43,552	Ord. Stk.	⅜	¼	3/16	Nil
	Uruguay Northern	73	Feb. 1941	891	— 315	35	9,133	8,590	+ 543	—	—	—	—	—
Canada	Canadian National	23,637	21.4.41	1,159,487	+ 345,390	16	16,286,902	13,083,886	+ 3,203,016	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	86	68	89	4½
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gr.	105¾	95 1/16	101¼	3 13/16
	Canadian Pacific	17,153	21.4.41	724,800	+ 205,200	16	11,295,800	8,742,400	+ 2,553,400	Ord. Stk.	9 7/16	4⅜	7¼	Nil
Indiat	Assam Bengal	1,329	30.4.41	45,187	+ 6,529	4	135,060	120,437	+ 14,623	Ord. Stk.	99⅜	71	100	3
	Barsi Light	202	10.2.41	6,457	+ 4,162	47	140,767	108,885	+ 31,882	—	—	—	—	—
	Bengal & North Western	2,086	31.3.41	264,150	— 7,291	26	1,554,747	1,468,050	+ 86,697	Ord. Stk.	283	234	300	5 1/16
	Bengal Dooars & Extension	161	Sept. 1940	14,625	+ 508	26	78,405	66,243	+ 12,162	,,	—	—	—	—
	Bengal-Nagpur	3,269	31.1.41	302,400	+ 29,410	45	7,375,262	6,648,145	+ 727,117	,,	96	83⅞	99½	4
	Bombay, Baroda & Cl. India	2,986	20.4.41	315,000	+ 16,575	3	665,325	596,850	+ 68,475	,,	108	99	109	5½
	Madras & Southern Mahratta	2,939	10.2.41	177,450	+ 8,713	47	5,268,599	4,967,838	+ 300,761	,,	104	97⅞	103½	7½
	Rohilkund & Kumaon	571	31.3.41	70,950	+ 5,404	26	343,151	317,933	+ 25,218	,,	284	238	290	5½
	South Indian	2,500	10.2.41	129,894	+ 17,639	47	3,935,914	3,507,694	+ 428,220	,,	93⅜	83	98½	4 1/16
Various	Beira	204	Feb. 1941	71,772	—	22	356,533	—	—	—	—	—	—	—
	Egyptian Delta	623	10.2.41	8,108	+ 2,421	47	211,217	187,431	+ 23,786	Prf. Sh.	7/10½	⅜	⅞	Nil
	Kenya & Uganda	1,625	—	—	—	—	—	—	—	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	44½	46½	7⅜
	Midland of W. Australia	277	Dec. 1940	12,239	— 1,195	—	91,124	76,928	+ 14,196	Inc. Deb.	88	80	87½	6⅛
	Nigerian	1,900	25.1.41	55,111	— 18,846	26	1,788,795	1,602,531	+ 186,264	—	—	—	—	—
	Rhodesia	2,442	Feb. 1941	460,055	—	22	2,388,076	—	—	—	—	—	—	—
	South Africa	13,287	1.3.41	764,247	+ 7,527	48	33,439,794	31,146,164	+ 2,293,630	—	—	—	—	—
	Victoria	4,774	Aug. 1940	888,289	+ 190,022	9	1,756,717	1,383,157	+ 373,560	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of 1/8 Argentine traffics are given in pesos
† Receipts are calculated @ 1s. 6d. to the rupee